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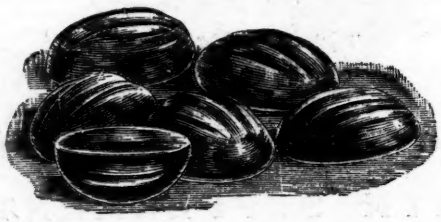

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A Clinical Lecture ON THE BAD HABIT OF VAGINAL DOUCHING.

GIVEN AT THE MANCHESTER ROYAL INFIRMARY.

BY

W. E. FOTHERGILL, M.A., B.Sc., M.D.

THE inventor of the vaginal douche-can was no friend to womankind, for the result of his ingenuity has, on the whole, been a curse rather than a blessing. Just as there was a pessary age, characterized by the haphazard use of pessaries in the treatment of the minor ailments of women, so there has been a long period of indiscriminate douching which has not yet reached its belated end. Soon after the discovery of micro-organisms as a cause of disease, the newborn infection idea began to put out of joint the nose of its little elder brother the displacement theory, and it was surmised that infection must be to blame for most of the minor pelvic troubles. Less was heard about versions and flexions, and those blessed words "endometritis" and "ovaritis" came into fashion as diagnoses. Less ingenuity was bestowed upon the adaptation of pessaries, and much trouble began to be expended on the disinfection of the vagina by douching, regardless of the fact that it was seldom infected. Not only was the douche used for the cure of supposed infection, but also for its prevention. For some time it was even the custom to swill the vagina with antiseptic lotions before, during, and after labour. The results were so deplorable that this practice was soon dropped. I well remember being told by the late Professor Sir Alexander Russell Simpson, in the year 1895, to tear down from the walls of the Edinburgh Maternity Hospital the instructions for routine douching which had been in force for a period during which the hospital had to be closed more than once on account of epidemics of puerperal pelvic infection.

For a time douching remained under the control of the medical profession; but then the general public took the bit in its teeth and began buying douche-cans on its own account. It has gone on doing so ever since, and the pernicious but apparently seductive habit of antiseptic douching is now generally begun on the advice of an elderly relative. A patient, now aged 43, began douching herself with alum water at the age of 19, on the advice of her stepmother. She had the "whites" at the time, and the alum naturally made the complaint worse. She married and went on douching, but changed from alum to Condy's fluid on the suggestion of her mother-in-law. For the last fifteen years she has douched herself night and morning; and after trying various other irritants, is now using a lysol substitute which makes her smart badly. The vulva, vagina and cervix are now "red raw" and streaming with discharge. She has had menorrhagia and dysmenorrhoea for several years, and recently has suffered continuous pelvic discomfort.

A healthy young lady mentioned to her mother-in-law that she had a slight excess of normal vaginal discharge just before and after the menstrual periods. She was provided by this relative with a douche-can, which she used every day for two years, the "whites" becoming worse and worse all the time. The discharge became constant and slimy in character, the menstrual flow was increased in duration and quantity. The patient began to have congestive dysmenorrhoea, and later there was dull aching pain throughout the intermenstrual intervals. When the douching was stopped the symptoms gradually disappeared, the last first and the first last. Cases like these are not exceptional; they crop up every day both in hospital and in private practice. Indeed, every patient who complains of minor pelvic ailments should be asked whether she douches or not; and, if she says "Yes," should be told to stop it. Nurses often douche without any instructions; sometimes because they think it is the correct thing to do, and at other times because their patients seem to expect it. This must also be stopped.

ANTISEPTIC AND MEDICATED DOUCHES.

In considering the action of douches we must remember that the vaginal surface has no glands, and is not a mucous membrane, but is covered by stratified squamous epithelium, which, though very strong and resistant to infection, is, so to speak, not quite waterproof. Thus the vaginal secretion is simply serum which exudes from the surface of the squamous epithelium, and which acquires its normal creamy appearance by admixture with leucocytes and epithelial débris. Sliminess of the vaginal discharge is due to an excess of mucus which comes from the lining of the uterus and not from the vaginal wall. Again, it must be remembered that the normal vaginal secretion is definitely acid in reaction, and that this acidity inhibits the life of most septic and pathogenic organisms. Thus the normal content of the vagina is a barrier to ascending infections, and it is generally sufficient to protect the uterus. For instance, after the experimental introduction of streptococci, the healthy vagina has been shown to be free from these organisms in the course of a few hours. In fact, most vaginal infections quickly cure themselves if left alone, and many cases cure themselves in spite of a certain amount of vaginal douching, which, in these cases, secures the credit that should by right belong to the unaided vagina.

But douching does actual harm in more ways than one: for it washes away the normal acid secretion; it kills the acid-producing bacteria which are the normal inhabitants of the vagina; it kills the superficial layers of cells, and irritates the subjacent layers. Further, it promotes hyperaemia of the parts, and thus increases the quantity of the secretion, favours menorrhagia, congestive dysmenorrhoea, and intermenstrual congestive pain. This explains the fact that the woman who douches much never gets rid of her vaginal discharge, and generally has other complaints in addition.

The above remarks refer to chronic douching; are there any excuses for what might be called acute or subacute douching? Take septic infection of the uterine cavity after abortion or labour. In these cases vaginal douching clearly does not touch the spot at all, and intrauterine douching is positively dangerous, as it sometimes causes fatal peritonitis by forcing septic material and noxious antiseptics through the tubes into the peritoneal cavity. The proper way to treat uterine sepsis is to dry-clean the uterine cavity thoroughly, using a general anaesthetic if necessary; to apply concentrated antiseptics with no excess of fluid; and thereafter to leave the uterus and vagina severely alone. Take gonorrhoeal infection of the vulva. If it is treated by douching, the infection is very likely to be carried up through the vagina to the cervix, whence the gonococcus has a clear run over the mucous lining of both uterus and tubes. Again, when the cervical canal is once infected, douching is futile, and proper disinfection under anaesthesia is the only method likely to be effective. In fact, there is no "home treatment" for uterine gonorrhoea in women. Yet there are still some who supply their patients with the inevitable douche-can and order copious and frequent libations of Condy's fluid, while in one clinic women are actually advised to wash out their own bladders!

Though it appears that antiseptic and medicated douches might well be dispensed with altogether, there are exceptions to the rule. Thus, in the palliative treatment of cancer of the uterus, disinfectant and deodorant solutions must be used. Again, when preparing a prolapsed and ulcerated vagina or cervix for operation, the nurse will give one or two mildly antiseptic douches every day for a week or ten days, during which the patient is kept in bed and the vagina lightly packed. After vaginal operations, also, a few antiseptic douches are useful on those rare occasions in which the incisions become septic. In such cases the indication is definite. But often there is no indication at all. The patient says, "Doctor, I have a vaginal discharge." The doctor makes no examination, but says, "Get a douche-can," and orders alum, iodine, lysol, mercuric perchloride, boracic acid, zinc sulphate—anything, in short, that occurs to him. The patient begins douching, the doctor forgets to stop her, and she goes on with it for years. The idea that a vaginal discharge must be infective is very widespread and persistent, though it may be far from correct. When a woman complains of a discharge it is most frequently "the whites," namely, excess of the normal creamy vaginal discharge. This is common before and after menstrual periods in perfectly healthy persons. Its persistence throughout the intermenstrual period is often an expression of a low general condition;

but some women have more vaginal secretion than enough throughout life, and quite apart from variations in health. Any form of local treatment aggravates "the whites," but the condition often disappears with improvement in health brought about either by general treatment or by change of air and scene. When the vaginal discharge is slimy, the uterus is secreting too much mucus, and this is increased by douching or any other local treatment of the vagina. If any local treatment is required it is curettage of the uterus; but this generally fails unless the general muscular and vascular tone is improved at the same time.

Hot Douches.

Hot douching is often ordered in cases of menorrhagia and other kinds of uterine bleeding. It is true that the application of water at a temperature of about 120° F. contracts the blood vessels and leaves them in a state of contraction which lasts for from half to three-quarters of an hour. But water which is hot enough to produce this effect is uncomfortably hot for the skin round the vulva and anus as it flows out of the vagina. It is possible, given a strong-minded nurse and a weak-minded patient, that really hot douches may sometimes be given for several days together. But in practice, when the hot douche is ordered, it is given warm; and water at 100° F. increases pelvic hyperaemia and so increases uterine bleeding. Thus it happens that when hot douching is ordered for menorrhagia, the patient really receives treatment by warm douching, and the bleeding gets worse instead of better. The hot douche, therefore, should probably be kept for use in obstetric haemorrhage, in which it is doubtless very useful on occasions.

Warm Douches.

Under certain circumstances it is highly desirable to increase pelvic hyperaemia, and for this purpose the prolonged warm douche is useful if given under proper supervision and for a limited period. The typical case for this treatment is a patient who is recovering from pelvic cellulitis following infection of a torn cervix. There is a more or less massive deposit of inflammatory exudate in the pelvic cellular tissue. Its absorption must be favoured in order to avoid permanent fixation of the pelvic organs. The same holds true also in reference to inflammatory deposits in other pelvic tissues and organs. Thus, in the subacute phases of pelvic infection, vaginal douching is seen at its best. A slow stream of normal saline solution at a temperature of 100° F. to, say, 105° F., kept up for ten or twelve minutes once or twice a day for two or three weeks, forms a part of the proper treatment of these cases. But it must be done with the patient lying on her back, for when a douche is given with the patient sitting up the flow of water never separates the vaginal walls, but simply runs out beside the douche nozzle without even washing the vaginal surface. To act as a poultice or fomentation the water must balloon the vagina, and this it does only when the patient is on her back.

Conclusion and Summary.

You may have noticed that some people cannot learn at all, that some can learn only by their own experience, and that some are sufficiently astute to profit by the experience of others. To those of you who care to try the results of my experience I offer the following practical hints:

1. Do not allow patients to douche themselves at all; but, when you have a definite reason for douching, let a nurse do it.
2. Do not use antiseptic douches unless there are germs to be killed in the vagina.
3. Remember that vulvitis is common but vaginitis is rare.
4. When you wish to apply antiseptic lotions to the vulva tell the patient not to douche herself with the lotion but to put it in a large bowl and sit in it.
5. Do not order hot douches (120° F.) in cases of menorrhagia and metrorrhagia.
6. Do not douche for leucorrhoea either creamy or slimy.
7. Do not douche for aches and pains in the pelvis which are not due to pelvic infection.
8. Use warm douches (100° to 105° F.) as you would use poultices or hot fomentations, in cases of pelvic infection which are neither too acute nor too chronic to be improved by the production of temporary local hyperaemia.

THE TREATMENT OF FURUNCULOSIS AND OTHER DEEP-SEATED COCCOGENIC INFECTIONS BY COLLOSOL MANGANESE.

By Sir MALCOLM MORRIS, K.C.V.O.

The routine treatment of boils and other deep-seated coccogenic affections, such as ecthymatous impetigo and some cases of acne, is often most disappointing. In the treatment of furunculosis some authorities lay stress upon constitutional treatment; and in certain cases, as where the process is associated with diabetes, this is obviously important. Others rely rather upon the local application of antiseptic agents, with the view of absorbing the boils. But both forms of treatment frequently fail. In many instances boils to boils succeed, and when at last the dismal procession ends, this often appears to be less the result of treatment than because the disease has run its natural course. This is true of vaccine-therapy, as well as of the earlier methods. Sometimes the inoculations appear to arrest the disease; in other cases they signally fail to do so.

In these circumstances it seemed to me desirable to give a trial to the treatment by collosol manganese instituted at the General Hospital at Etaples by Mr. J. E. R. McDonagh.[1] The results in all my cases are so remarkable as, in my judgement, to demand publication.

It should be premised that at first the collosol manganese (Crookes) was used in the form of a single solution. Afterwards it was employed in the improved form of two solutions, which had to be mixed in the syringe; of this, much smaller doses (about one-half) suffice.

Case I.

The patient, a medical man, came to me on November 24th, 1917, with large, deep-seated boils on the hairy part of the face, which he believed to be an infection from a carbuncle in a diabetic patient, from whom he had contracted a septic whitlow. Culture showed that the micro-organism was the *Staphylococcus pyogenes aureus*, and an autogenous vaccine was prepared, with which he was inoculated on November 30th. By this time a boil on the right cheek had enlarged to the size of a Tangerine orange; there was much oedema of the face and eyelids and great pain. On December 6th pus was discharged and the pain relieved; but during the next seven weeks boils continued to appear at intervals, usually in groups of four or five, on one or both sides of the face. By January 14th eleven injections of vaccine had been given, antiseptic lotions and ointments being also applied. On January 31st the patient consulted me again and I advised the injection of collosol manganese. The first injection was given the next day. "Improvement," to quote from the patient's own notes, "began on the third day afterwards. Subsequent boils, which continued to appear for a further fourteen days, were not painful, and many of them aborted without pus formation. In all, four injections were given—1.5 c.cm. on January 31st, 2.5 c.cm. on February 5th, 3 c.cm. on February 12th, and 1 c.cm. on February 28th; the first and second in the gluteus, the third and fourth in the flank. In the first three the old preparation was used; in the fourth the new. By March 5th I was able to report 'All clear.' From November 30th to January 31st, while the vaccine was being given, thirty-three carbuncular boils appeared; after the collosol manganese was begun there were only seven, the last appearing on February 20th, three weeks after this treatment was begun." The patient's general health also greatly improved; he began to feel better within a week of the first manganese injection.

Case II.

The patient was an army captain who was subject to acne. When the first collosol manganese injection (0.5 c.cm. of the new preparation) was given, on March 13th, he had been in hospital four months with facial boils and acute impetigo contagiosa of the same region. During that time he had had vaccine injections, and various antiseptics had been applied, without result. Another manganese injection (0.5 c.cm.) was given on March 16th, and a third (1 c.cm.) on March 19th. By this time all the lesions had cleared up.

Case III.

I saw the patient, a lady, for the first time on February 16th. She had extensive follicular impetigo of the scalp, which began in the preceding October, and had gradually become more severe. When she came to me she complained of great pain from small multiple deep abscesses. There was a good

deal of oedema, and the posterior cervical glands were enlarged On February 18th 1.5 c.cm. of the old collosol manganese solution was injected. By February 22nd the lesions were beginning to clear up, the pain was nearly gone, and the general health distinctly better. A second injection (0.5 c.cm. of the new preparation) was given, and a third (1 c.cm.) three days later. By this time further improvement was manifest, and the patient was able to sleep. No further injection was required, and by March 19th recovery was complete, the only trace of the disease consisting in small bald areas on the site of the lesions.

CASE IV.

The patient, a major, came to me first on February 22nd, when he had twelve large indurated boils on the buttocks, thighs, and axilla. The infection began three months before, following scabies. A dose of the old collosol manganese solution (1.5 c.cm.) was injected into the buttock. Three days later, when a second dose (2 c.cm.) was given, the boils were subsiding, and the general health had improved. By March 1st there was further improvement; all the smaller boils had retrogressed, a large indurated lesion in the left axilla was much less painful, and the core had come away without the usual trouble. A third injection (1 c.cm. of the new preparation) was given. The next day all the boils had cleared up, but there was a fresh suppurating lesion over the right patella. Further injections (one of 0.5 and two of 1 c.cm.) were given on March 5th, 8th, and 11th. By March 14th the boil on the knee had subsided; but a fresh boil appeared on the right thigh. Three more injections followed, on March 18th, 21st, and 25th, and the case is now well.

The results of the new treatment, even in the last and most obdurate of the four cases, speak for themselves. But emphasis must be laid upon the great improvement in the patient's general health which was observable in every case within a few days of the first injection. It may have been due in part to the diminished pain and the heightened expectation of recovery; but no one who saw the patients could, I think, regard this as the full explanation. It was especially noticeable in the second case, in which the patient was suffering from shell shock. The injections, except two of those in the first case, were all intramuscular. They were followed by no reaction.

REFERENCE.

[1] *Medical Press and Circular*, December 5th, 1917, p. 431.

THE CHANCE OF RECOVERING DYSENTERY BACILLI FROM THE STOOLS ACCORDING TO THE TIME ELAPSING SINCE THE ONSET OF THE DISEASE.

EXPERIENCE AT A BASE HOSPITAL IN FRANCE.

BY

LIEUT.-COLONEL C. J. MARTIN, F.R.S., A.A.M.C.,

AND

SISTER F. E. WILLIAMS, A.A.N.S.

PRIOR to the war the notion seems to have been widespread that the bacteriological diagnosis of dysentery was as satisfactory as, say, that of diphtheria, and measures for the control of epidemics have been founded to some extent on this assumption. Our experience of laboratory work in the Eastern Mediterranean and Egypt in 1915 and 1916, however, led us to the conclusion that the chance of recovering dysentery bacilli from the stools was, after the first few days of the disease, a small one.

Similar experience seems to have been gathered elsewhere. Kolle and his co-workers[1] give an account of the bacteriology of an epidemic on the Russo-German front with which they dealt. They isolated *B. dysenteriae* Shiga from such a minute fraction of the samples examined that they came to the conclusion that, notwithstanding the general clinical resemblance to dysentery of this type, they must have had to deal with an outbreak from some other cause. Seligmann and Cossmann[2] also obtained very unsatisfactory results when working at a base hospital in Austria. They state that "they nearly always failed to recover dysentery bacilli" in undoubted clinical cases of dysentery. During eight months' work they recovered a dysentery bacillus but fifteen times out of "hundreds of attempts."

Later Seligmann was removed to a laboratory nearer the front, where he had opportunity to examine material from the recently evacuated sick. Under these conditions the results were entirely different, *B. dysenteriae* Shiga being recovered in 38 per cent. of cases examined. Seligmann does not state the actual number of examinations which he made, but for one month (June, 1915) he gives the percentage positive findings according to the state of the illness. These were:

First week	...	70 per cent. successful recoveries.
Second week	...	53 per cent. " "
Third week	...	18 per cent. " "
Fourth week and later: Nil.		

In the case of patients admitted to this hospital, the onset of the disease has been from one day to two months previously. The same routine has been applied in all cases, so we have a number of observations bearing on this point.

The methods employed were to plate out a suitable dilution of the stool, if homogeneous, upon a plate of MacConkey's lactose-bile-salt-peptone-agar. If the stool contained any mucus, a piece was chosen, washed in sterile water, broken up in the same, and some drops sown on the plate and well rubbed over with a glass rod. The amount chosen was so as to produce about 500 colonies on the plate. If, next day, the number of colonies was so great as to be unmanageable or so few as not to provide a sufficient sample, a second plate was made to remedy the defect, a sample of the stool having been kept in the icebox meantime to provide against the above contingencies.

After eighteen to twenty hours for growth the plates were scrutinized, and if they showed positive dysentery colonies, samples of these were picked off and sown into tubes of warm broth. Four hours later they were examined for motility and sown into tubes of peptone water containing 1 per cent. of lactose, glucose, and mannite respectively, and on the surface of an agar slope and placed in the incubator overnight.

Next morning, if the actions in the various carbohydrate media were typical, the growth on the agar slope was emulsified and its agglutinability tested against dilutions of appropriate agglutinating serums up to 1 in 1,000 by the macroscopic method.

It was rare to find *B. dysenteriae* the preponderating organism on the plates. This occurred sometimes when perfectly fresh muco-pus obtained from a patient in the first or second day of the disease was the material sown. Usually when dysentery bacilli were present the number of colonies varied between 1 and 20 on a plate showing 500 to 1,000 other organisms.

To ascertain whether MacConkey plates offered any hindrance to the growth of *B. dysenteriae* Shiga or *B. dysenteriae* Flexner, we spread the same volume of a broth containing a few bacilli which had been just recovered from a dysentery stool and not subjected to a subculture upon a series of MacConkey plates and also upon plates of ordinary nutrient agar. The results on incubation were as follows:

TABLE I.

	Emulsion of *B. dysenteriae* Shiga sown.			Emulsion of *B. dysenteriae* Flexner (Y).	
	No. of Colonies on Nutrient Agar.	No. of Colonies on MacConkey Media.		No. of Colonies on Nutrient Agar.	No. of Colonies on MacConkey Media.
1.	530	280	1.	496	676
2.	546	584	2.	259	554
3.	236	450	3.	290	320
	1,312	1,314		1,045	1,550

The inhibitory action of the bile salts in the MacConkey media evidently did not prevent the colonies of dysentery bacilli appearing. They were, however, of smaller size upon the MacConkey plates, the mean size of the Shiga colonies being 1.07 mm. and of the Flexner 0.82 mm., as against 1.2 mm. and 1.34 mm. respectively upon nutrient agar after the same interval for growth to occur.

We feel confident that whenever dysentery bacilli were present in the material plated to the extent of about 1 to 500 other organisms capable of growing upon a MacConkey plate, they were discovered. An abbreviation of the ritual sketched above does not appear to be permissible, and resort to agglutination tests without ascertaining that the

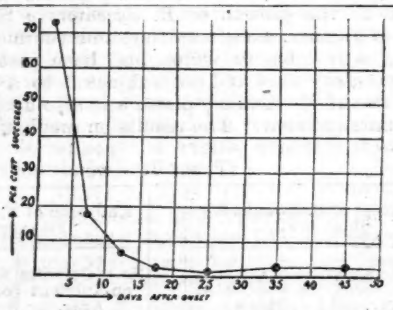
organism under examination satisfies the essential cultural and biochemical characteristics of one or other of the dysentery bacilli is dangerous, particularly in the case of the mannite-fermenting group of dysentery organisms, for high titre serums prepared against this group are not specific in moderate dilution, and will agglutinate several kinds of coliform bacteria.

Innocence of this fact has led to much confusion in some military laboratories, as witness the discussion at the Medical Society of Vienna, April 30th, 1915, upon a paper by Falta and Kohn.[3]

From June to December, 1917, we made upwards of 1,200 efforts to recover dysentery bacilli from the stools of patients at various periods of their illness. The results of these attempts are arranged in Table II, in the relation to the time intervening between the onset of the disease and the examination. We have not included in the figures thus analysed the cases in which there was not clear evidence that the patient was manifesting or had manifested dysenteric symptoms, and all cases in which *E. histolytica*, either active or encysted, were discovered have been excluded.

TABLE II.—*Results of 1,050 Efforts to Recover Dysentery Bacilli from Stools at Various Stages of the Disease, June–December, 1917.*

Period of Disease.	No. of Examinations.	Positive Results.	Percentage Positive.
1st to 5th day ...	153	104	68.0
6th to 10th ,, ...	161	28	17.4
11th to 15th ,, ...	194	13	6.3
16th to 20th ,, ...	162	5	3.1
21st to 30th ,, ...	205	3	1.5
31st to 40th ,, ...	104	3	3.0
41st to 50th ,, ...	34	1	3.0
51st to 60th ,, ...	14	—	
61st to 70th ,, ...	9	—	
71st to 80th ,, ...	5	1	
81st to 90th ,, ...	3	—	
91st to 100th ,, ...	6	—	
Totals	1,050	158	



Graph representing success in recovering dysentery bacilli from the stools at different periods after the onset of the disease (1,050 examinations).

CONCLUSION.

Our chance of recovering dysentery bacilli rapidly diminished after the first few days. This appeared to be the case whether the stools remained characteristically dysenteric or not.

The muco-pus and epithelial débris discharged in the milder pathological condition, and the necrosed coagulated superficial layers of the mucous membrane in the more serious is, except in the earliest stages of the disease, invaded by hosts of intestinal organisms, which soon overwhelm the dysentery bacilli originally present. This places a serious limit on the value of a bacteriological diagnosis of dysentery. If reliance had been placed on the results of one examination but 15 per cent. would have been discovered.

REFERENCES.

[1] *Deut. med. Woch.*, 1916. [2] *Münch. med. Woch.*, December, 1915, p. 1768. [3] Zur Frage der Variabilitat von Dysenterie Stammen der Galizchen-Russichen Epidemie Herbot, 1914, *Wien. klin. Woch.*, 1915, vol. xxviii, p. 484.

TWO FATAL CASES OF ICTERUS GRAVIS FOLLOWING INJECTIONS OF NOVARSENOBILLON.

BY

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THE two cases here recorded are, we think, of distinct interest at the present time, when so many cases of syphilis are under treatment by arsenical drugs.

CASE I.

A soldier, aged 26, was admitted on March 22nd, 1917, with slight jaundice. He stated that he felt well, with the exception of a slight pain in the right hypochondrium, and only reported sick because he was told he looked yellow. He gave a history of recurrent attacks of abdominal pain for three years, occurring every three or four months and lasting three or four days.

On admission his skin and corneae were stained yellow. There was no abdominal pain or tenderness and no vomiting. The bowels were constipated; the urine contained bile in considerable amount, but no albumin or sugar. Liver dullness 4½ inches in nipple line.

He had been under treatment for syphilis. Captain Brown, N.Z.M.C., in charge of V.D. section, reported that the man was admitted on January 22nd, 1917, with a large sloughing, discharging sore on right side of foreskin and also a small penile sore. There was some inguinal adenitis, but no rash; spirochaetes were present. The blood test was weakly positive. He was treated with novarsenobillon as follows: January 23rd, 0.45 gram; February 15th, 0.6; February 22nd, 0.6; March 1st, 0.9; March 8th, 0.9; March 15th, 0.6. He received also five mercurial injections. The sore had healed on March 1st. While in hospital he developed inguinal bubo, which was tapped twice. The result of the last blood test was negative.

The jaundice steadily increased, and on March 28th the liver dullness measured three inches. Vomiting began on April 1st, the jaundice grew more intense, the urine became almost black in colour, and the pulse slow and weak. He died on April 5th.

Post-mortem Observations.

A *post-mortem* examination was made by Captain E. C. Lowe, from whose report it appears that the heart was normal, save for bile staining of the valves and vessel walls and small petechiae on the walls of the left ventricle. The lungs were normal, except for hypostatic congestion, which was intense on the left side. The spleen was not enlarged and appeared normal on section. The intestines were not ulcerated, but the jejunum showed small petechiae and was deeply bile stained, and the duodenum, which contained a dark greenish bilious fluid, was markedly injected. The gastric mucosa was bile stained and injected, markedly at the pyloric end; there were no haemorrhages. The pancreas was slightly congested, but otherwise normal. Both kidneys appeared normal, save for bile staining. The meninges were bile stained, but otherwise the cranial contents were normal. The note upon the liver and gall bladder was as follows:

Liver.—Smaller than normal. Weighed 2 lb. 2½ oz., and was deeply bile stained. Some mottling over anterior surface, most marked on the right lobe. No unevenness of surface; edges sharp; no inflammatory adhesions; left lobe small. On section right lobe cuts easily and shows deep yellow degeneration in irregular areas mostly confined to anterior surface and anterior border for the distance of an inch inwards. The centre of the organ comparatively free, of yellow coloration, but showing a nutmeg appearance of central congestion and perilobular contrast. Left lobe shows much less sign of degeneration. Cuts normally. Slight sign of yellow degeneration. No nutmeg appearance.

Gall Bladder.—Normal. Contains a drachm and a half of bile. Ducts free and patent. No signs of gall stones or cholecystitis.

Microscopical Examination.

Captain F. L. Armitage reported as follows:

Liver.—Sections show marked excess of fibrous tissue throughout, especially round Glisson's capsule, but also spreading into the gland tubules. Islets of healthy liver tissue persist, with only a small amount of fatty degeneration in places. No active necrosis, but inflammatory changes are seen everywhere. It appears to be some variety of cirrhosis of the liver and not yellow atrophy.

Spleen.—Some excess of fibrous tissue in the trabeculae and pulp, but no gross change.

Kidney.—There is so much *post-mortem* change that it is difficult to say how much real lesion there may be. The consolidated tubules show marked necrosis, probably indicating a tubal nephritis. A few small cysts are present.

Note on the Histology.

By Professor F. W. ANDREWES, F.R.S. (Major R.A.M.C.T.).

The liver is partly bright green, partly deep red, and the appearances are different in the two areas.

Green Part.—Here the changes are less advanced than in the red part. There is a cirrhosis of multilobular type of fairly recent standing, but more than I should have thought possible in seven weeks. The young fibrous tissue is infiltrated with round cells. The hepatic cells show considerable degenerative change, with some fatty infiltration, but the material had been put in spirit, which spoiled it for Sudan III staining. There is a catarrhal cholangitis of the larger bile ducts.

Red Parts.—Here there is a little coarse cirrhosis, but the liver cells are almost completely degenerate, leaving only a loose fibrous stroma, with an interstitial inflammatory infiltration. Shrunken remains of the liver cells are seen. The bile ducts are better preserved. The red colour is due to extravasation of blood corpuscles in the centres of the lobules. This extravasation is extreme, masking the structure of the tissues, and is quite sharply defined, the periphery of the lobules being free. Instead of being due to dilated capillaries, as in ordinary nutmeg liver, the condition seems due to actual extravasation. I am unfamiliar with this appearance, which is very striking.

CASE II.

A soldier, aged 20, was admitted to hospital on January 24th, 1917, with left-sided pleurisy—not severe. At the end of February a suspicious ulcer appeared on the fraenum. A Wassermann test proved positive, and he was transferred to V.D. section on March 19th, when he had a round healed sore on the under side of the body of the penis, and general adenitis. The skin and mucosa were clear. The Wassermann reaction was "strong positive." Captain Brown reports that he was treated with novarsenobillon, 0.45 gram, on March 25th, and 0.6 on March 27th. He received also two mercurial injections. The blood test on March 31st was double positive. He developed a second attack of pleurisy, and on April 19th the left chest was aspirated and 60 oz. of clear fluid removed. He improved in health, and on May 2nd it was decided to continue the anti-syphilitic treatment and he was given novarsenobillon (0.60) and a second dose (0.60). On May 9th he was placed on an iodide-mercury mixture. On May 15th the Wassermann test was double positive, and on the following day another dose of novarsenobillon (0.60) was given. No further injections were given. On June 1st he was slightly jaundiced; he was kept in bed and the mercurial treatment discontinued.

On June 3rd the liver measured 5¼ in. in the nipple line. There was no improvement in the jaundice. The urine (specific gravity 1015) contained no albumin, sugar, blood, bile, or arsenic (Marsh's and Reinsch's tests). On June 5th the icteric tinge had slightly increased; the urine was free from blood and arsenic, but bile was present. The jaundice and the amount of bile in the urine had increased by June 12th, and on the following day he vomited. On June 15th there was swelling of the right parotid without rise of temperature. There was some slight improvement for the next few days, but on June 22nd it was noted that the jaundice was more intense, that he vomited once or twice nearly every day, and that the liver dullness now measured 2¾ in. in the nipple line. The temperature was subnormal. The urine (specific gravity 1010) contained bile, albumin, and epithelial and granular casts. It contained neither tyrosin nor leucin. The jaundice deepened, anorexia became marked, and on June 27th the breath had a peculiar rancid odour. The tongue was clean; there was no tenderness over the liver, stomach, or spleen. The area of absolute liver dullness had diminished to 2½ in. The spleen was not enlarged. The pleurisy had cleared up, but the pleura on the left side was thickened. His condition fluctuated on the following days; he passed large quantities of dark urine. On July 5th there was no absolute note of dullness on percussion over the liver; the relative dullness in the nipple line was 2 in. only. Later he became delirious and vomited occasionally but not incessantly. On July 9th he was semi-conscious. He died early on the morning of July 10th. All the urine was collected from June 22nd till death; the quantity varied from about 38 oz. during the first week to 11 oz. during the later days of his life. The daily quantity was concentrated to about 50 c.cm., and submitted, with negative results, to Marsh's test, and on several occasions, on the advice of Mr. A. J. Ewins of the Lister Institute, to Norten-Koch's test. Arsenic was not detected in any one of the sixteen examinations, nor was it detected *post mortem* in the liver, kidney, lung, spleen, pancreas, or heart muscle. Two samples of urine were submitted to Dr. Hurtley (June 29th and July 2nd), who found no arsenic in either; he also examined a piece of liver without finding any trace of arsenic. Consultations with Colonel Davy, C.B., consulting physician in the command, were held on two occasions. Colonel Davy's note is as follows:

"I have seen —— in consultation at Codford on two occasions—on June 7th and June 27th. He is suffering from jaundice, and has progressively become worse and worse, in spite of the most careful treatment. Some of his symptoms, especially first enlargement and then diminution of the liver dullness, rather look like acute yellow atrophy of the liver. Reviewing, however, the whole group of symptoms, they do not conform to the usual group found in this disease, and there is an absence of leucin and tyrosin, for which the urine has been carefully examined. It seems probable that we are dealing with a condition hitherto not recognized as any of the ordinary diseases, and the fact that he has had five injections of novarsenobillon raises grave suspicions that his condition is due to these injections."

Post-mortem Observations.

A *post-mortem* examination was made by Captain E. C. Lowe, from whose report it appears that the external surface was deeply bile stained. The peritoneal cavity contained bile-stained fluid, and the retroperitoneal gland was enlarged, pulpy, and bile stained. The heart was normal. The right lung was normal, but the pleura on the left side was adherent throughout, and the lung compressed, semi-solid, and friable. The intestines were normal, as was the stomach, except for a few areas of deep injection. The spleen (weight 10 oz.) was enlarged, showing definite sclerotic mottling on the surface, and a puckered scar near the posterior border. Its substance was less friable than normal. The kidneys were bile stained, and the cortex appeared fibrotic and dense. The right weighed 9½ oz., the left 10 oz. The gall bladder was normal and contained normal bile. The note on the liver is as follows:

Liver (weight 36½ oz.).—Transverse diameter, 7¼ in.; vertical measurement, 6¾ in.; antero-posterior measurement, 3½ in. External surface shows white fibrotic linings. No external adhesions. Organ irregular and nodular to touch. Extensive greenish-brown areas of necrosis were found over the upper third of right lobe, in a few places on the left lobe, and almost entirely involving the middle lobe. On section, these areas show extensive necrosis of liver tissue of a greenish-brown colour and of soft consistency, irregularly separated by dark red fibrotic areas of very dense consistency.

Report on the Histology of Organs.

By Professor F. W. ANDREWES, F.R.S.

Liver.—Small, tough, with extensive greenish staining involving almost the whole organ, here and there red fibrotic areas. Not nodulated as in ordinary cirrhosis. There is a well-marked cirrhosis, multilobular in type, throughout the green part of the liver. The connective tissue is young and cellular, with lymphocytic infiltration. The liver cells show only a moderate degree of degeneration (much less than in the green parts from Case I), and there is very little fatty change in frozen sections stained with Sudan III. There is marked bile staining, and amorphous masses of biliverdin, bright green in colour, are present in the substance of many of the liver cells, as well as in the bile capillaries. The red areas in the liver show much more complete destruction of the liver cells and more advanced fibrosis. The red colour is due to haemorrhage. As in Case I, it is difficult at first sight to believe that such advanced cirrhosis could have occurred in six or seven weeks, but the similar change in both livers suggests that this may have been the case. The cirrhosis is not of syphilitic type.

Kidney.—Very large and deeply bile stained. There is a good deal of vascular congestion, but there is no glomerular nephritis, though the glomerular capsules contain a coagulable exudate. The epithelium of the convoluted tubules is greatly swollen and vacuolated, but the nuclear staining is mostly preserved, and there is very little fatty change in Sudan III sections. Bile-stained casts and granules are numerous, green with biliverdin.

Heart Muscle.—Slight fatty change only, in the form of granules about the poles of the nuclei.

Spleen and Retroperitoneal Gland.—No striking changes found.

These two cases resemble one another very closely in their history, clinical manifestations, and morbid anatomy.

Briefly stated, after receiving five doses of novarsenobillon followed by an interval (of seven and fourteen days respectively), they became jaundiced. At first the symptoms were mild, but the jaundice gradually deepened, the liver became greatly reduced in size, persistent vomiting occurred, and the patients died twenty-one and forty days respectively after the onset of symptoms. Autopsy showed an acute cirrhosis of the liver. Both were cases of primary syphilis and showed no secondary manifestations. Case No. 1 gave a negative Wassermann reaction at the conclusion of treatment, but Case No. 2 gave a double positive reaction on the last occasion on which it was taken.

That the cirrhotic condition of the liver was due to syphilis appears to be almost out of the question, as shown by Major Andrewes's report. In Case II he remarks on the appearance of the liver: "I am unfamiliar with this appearance." The clinical symptoms do not accurately agree with acute yellow atrophy of the liver, and the naked-eye and microscopical appearances of the liver are quite unlike what is found in this condition.

These two conditions being excluded, the question naturally arises whether these fatalities were due to chronic poisoning with arsenic. Inquiries were therefore made with a view to finding out whether similar cases had occurred at the N.Z.V.D. section or elsewhere.

Captain Falconer Brown, officer in charge of N.Z.V.D. section, states that he has treated 263 cases of syphilis with novarsenobillon, and the cases reported are the only ones followed by jaundice. Captain Robert W. McKenna, venereal specialist to 1st Western General Hospital, states that he has not met a single case of jaundice following treatment of syphilis by salvarsan and kharsivan, and

attributes his success to special precautions with regard to intervals between doses, etc.

Lieut.-Colonel Harrison, officer commanding Rochester Row Hospital, writes: "Jaundice occurs during treatment of syphilis with arsenical compounds in 0.6 per cent. of cases, and this symptom may last for four or five months."

In neither of the cases here reported was arsenic detected in the urine.

TOXIC JAUNDICE, WITH ATROPHY OF LIVER, FOLLOWED BY REGENERATION AND RECOVERY.

By BARBARA G. R. CRAWFORD, M.B., Ch.B.

During the summer of 1917 I had the opportunity of seeing and treating three cases of toxic jaundice caused by trinitrotoluene. In all three there was profound illness, with jaundice, delirium, and marked diminution of liver area, and later recovery, with replacement of liver substance and function. During the course of the disease the patients were seen by one of H.M. Medical Inspectors of Factories, who confirmed the diagnosis and the diminished liver area in two of the cases (the third case, being convalescent at the date of his visit, was not fully examined), and who stated that in his opinion a fatal issue was to be expected.

The patients were workers on T.N.T. manufacturing processes, and were exposed both to fume and skin contact. C. B., male, aged 29, worked for four months in a corrugated iron building where the T.N.T. was washed, and then for eight weeks in the open air recovering T.N.T. from waste water gullies. T. M., male, aged 22, worked for three months in the T.N.T. process, and then for five weeks on the outside launders (as the gullies are called) at the same work as C. B. B. C., female, aged 19, worked for six weeks in the T.N.T. packing house. One patient had thus been in contact with the T.N.T. for six months, and one for four months; both of these had been employed in the open air for many weeks before the onset of illness; the third had worked in T.N.T. for six weeks only, and had been free from contact for thirty-eight days before the jaundice was observed; during that time she had been attended by her own private doctor for "sore throat." The hands of all three were stained orange yellow, as is common among T.N.T. workers.

In each case the health had not been satisfactory for some weeks before the onset of jaundice, the complaints varied greatly and can hardly be regarded as definite prodromal symptoms: B. C. complained of sore throat, T. M. of faintness, C. B. of tightness of chest (and a fourth case, referred to later, of weakness of the eyes).

On investigation, however, it was ascertained in each case that the worker had felt weak, with poor appetite, slight nausea, and a tendency to headache (one case, C. B., came to the surgery asking for his discharge, as he did not feel able for his work). Cyanosis was not observed in any of these cases, and the patients had never suffered from T.N.T. dermatitis.

The first definite sign was yellowness of the conjunctivae, quickly followed by general icterus; at the beginning the patient did not appear to be seriously ill, but shortly afterwards became suddenly worse with vomiting, delirium, incontinence of urine and faeces; rigors were frequent and were associated with severe epigastric and hepatic pain; the stools were paler than normal but never entirely clay-coloured; the urine was heavily bile-stained, normal in quantity and specific gravity, acid in reaction, and containing small traces of blood and albumin (in one case tube casts and epithelial débris were present); leucin, tyrosin, and T.N.T. were absent.

In all three cases the disease ran a similar course, the patient becoming steadily worse; the liver area decreased and drowsiness and delirium persisted. In one case the patient was more or less unconscious for over three weeks, passing his evacuations under him and having to be fed by hand. In this case an inexperienced nurse placed the clinical thermometer in the patient's mouth, and a moment later recovered part of it with difficulty, the lower end having been bitten off and swallowed by the semi-conscious man. Fortunately the thermometer end was passed later with a globule of liquid mercury in the stools.

Extreme emaciation occurred in two of the cases, the third lost weight but did not emaciate to the same extent as the others. The temperature was normal as a rule, rising occasionally for a day or less at a time to 100° F.; the pulse-rate was normal though feeble at the height of the illness. The breath was foul and had a characteristic odour; the tongue and lips were furred and bled slightly; the colour of conjunctivae and skin became dark yellow; small raised petechial spots appeared on the limbs, chest, and face; there was no itching. Vomiting was troublesome and the bowels tended to be costive; in response to an enema or an aperient slimy pale stools were passed which stained the draw-sheet pink round the edges of the soiled area; during this time no T.N.T. could be detected in the urine. Perspiration was scanty, the skin being harsh and dry.

Whenever the patient was sufficiently conscious he complained of constant pain over the liver region, and the liver dullness steadily diminished until in the two most severe cases one to one and a half inches or less could be made out in the nipple line.

The treatment was necessarily somewhat empirical, the symptoms being alleviated as far as possible as they arose. The skin was encouraged to act, the bowels kept free by a mild aperient (white mixture) and enemas; nourishment was given in small quantities at frequent intervals—milk and soda water, meat juice, thin broths, barley water, etc.; meat extracts were well tolerated, while fruit and fruit juices disagreed and caused vomiting. Injections of 6 oz. of a saturated solution of sodium bicarbonate were given by the rectum twice daily at the height of the illness, and the same salt by mouth also in a mixture and in milk to the amount of 2 drachms daily; whenever this was discontinued the patients became worse. All three cases slowly rallied, and in the fifth or sixth week of the illness began definitely to improve; delirium ceased, the vomiting and pain become less frequent, appetite better, colour less deeply jaundiced, and the stools became normal in colour and consistence; the area of the liver increased, and its function returned with remarkable rapidity; in one case (C. B.) in five weeks the liver dullness from being less than one inch increased to two and a half inches.

Convalescence, however, was slow and slight relapses frequent, the patient becoming drowsy and sick, and having recurrence of epigastric pain if allowed to do much at first, or if excited by friends or visitors. When the patients were allowed up oedema of the legs and to a less extent of the body was troublesome, and persisted for weeks after the urine was clear of albumin; the jaundice was slow in subsiding, a yellow tinge remaining after ten weeks. The liver dullness, after having almost disappeared in two of the cases and having greatly diminished in the third, returned practically to normal. The petechial spots persisted as small raised papules, with no itching, especially on the face, long after the patients had otherwise recovered and the jaundice had completely disappeared.

The three cases were eventually discharged home and returned to work, T. M. as a miner, C. B. as a sanitary worker, and B. C. on the factory traffic gang. The length of treatment in hospital averaged ten weeks, and the duration of illness until the patient was fit for work again was nearly twice that period. I have recently heard from the patients, and all report themselves well and at work at the present time, six months after recovery. In the third case, B. C., which was the least severe, blood examination revealed no pathological change, cell and haemoglobin ratios being normal. Menstruation was missed for three periods during her illness, but has occurred normally since.

In a fourth case, a girl of 18 years, who worked for four months on the outside launders, and was seen on several occasions but not treated by me, the symptoms and course were the same—full recovery and regeneration of the liver taking place after a serious and prolonged illness of many months, in which the liver area diminished to less than half its normal size. In this case also sodium bicarbonate was given freely throughout.

The chief points of interest appear to be: (1) The regeneration of the liver after very extensive destruction. (2) The beneficial result of the exhibition of sodium bicarbonate [1] in what seemed to be hopeless cases. (3) The absence of T.N.T. in the urine when it was being excreted by the bowel.

From a series of several hundred examinations of the urine my experience has been that T.N.T. is normally present (Webster's test) when a worker is in contact with this substance, and that instead of this being a danger signal, as has been held, it is on the contrary normal and quite compatible with good health; it is not found in the urine of patients suffering from toxic jaundice.

REFERENCE.

1 Sodium bicarbonate is recommended by Dr. W. H. Willcox for the treatment of toxic jaundice due to tetrachlorethane, BRITISH MEDICAL JOURNAL, February 26th, 1916.

ACUTE METATARSAL OVERSTRAIN (FOOT-SWELLING).

BY A. ROCYN JONES, M.B., B.S., M.R.C.S.,

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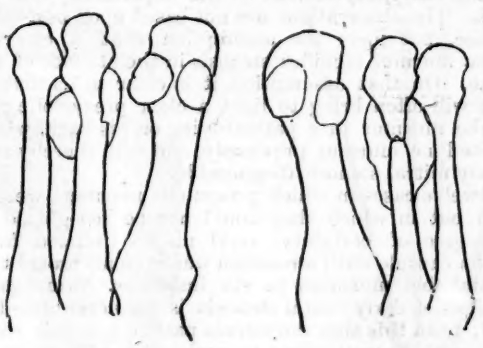
ACUTE overstraining of the metatarsals is one of the disabilities to which the marching foot is subject, and even before the war was being increasingly recognized by the military surgeons of the large conscript armies of the Continent as a lesion to which their recruits were liable. The complaint was first described in 1855 by Breithaupt, who gave it the name of "foot-swelling," and attributed it to injury of the metatarso-phalangeal joints and tendinous sheaths. This was the accepted explanation until 1887, when the French surgeon Pauzat, in a very striking paper, suggested periostitis of the metatarsal bones as a cause. Pauzat's explanation still holds good for some cases, but with the advent of x rays in 1897 fracture was revealed, and in the *Revue d'Orthopédie* of September, 1898, there is an excellent skiagram by Maunoury of Chartres, showing fracture of the third metatarsal with characteristic callus formation.

The following case illustrates the typical signs and symptoms of overstrain:

W. T., aged 28, entered the army in October, 1914. During his training in England he frequently fell out on the march because of sore feet, but was never completely off duty for this trouble. On May 24th, 1916, he was sent to France, and remained a few days at a rest camp. On May 28th he marched six miles, and at the end began to feel pain in the left foot. Next day he marched another ten miles, after which the foot, being swollen, was bandaged. The following day he again marched a few miles, and both feet became swollen and painful. He was sent to a field ambulance, and thence down the line. He was admitted to the Royal National Orthopaedic Hospital on June 15th, bearing a card with the provisional diagnosis of trench feet.

The feet were swollen, and he complained of pain across the anterior part of the dorsum of each foot, particularly the left. He had distinct pes planus, but, owing to the pain, he objected to any attempt at manual inversion. He was kept in bed and the feet were massaged. At the end of ten days he was allowed up; there was a recurrence of the pain, which he persisted in



Right. Left.

An outline drawing of a skiagram showing the three inner metatarsals of a soldier's feet. There is a marching fracture of each second metatarsal with characteristic callus formation.

localizing at the anterior part of each foot. An x-ray picture, an outline drawing from which is here reproduced, showed a fracture of each second metatarsal bone just behind the head, with considerable surrounding callus, that on the left being the more exuberant and therefore possibly explaining the greater tenderness on this side. The patient was kept off his feet completely for one month, and during this time was given massage and hot air. He was then by easy stages allowed to get up, and six weeks after admission he could walk with comfort. To prevent relapse it was thought advisable to add a transverse "football" bar across the sole of each boot, well behind the position occupied by the heads of the metatarsals, to take the weight for the time being off these heads, and for the planus a valgus wedge and prolonged heel were added. He was then transferred to a convalescent hospital.

It is very seldom that marching fractures occur in both feet as in this case. Of 575 cases collected by Nion in two only were both the second metatarsals affected, in one both the third, and in one the second and third. Rarely are there two fractures in the same foot; in the same series four times only were the second and third metatarsals broken and once the second and fourth. Acute metatarsal overstrain is practically confined to the three middle metatarsals. I can find no recorded instance of fracture of the first metatarsal due to marching, and fractures of the fifth are commonly the result of accident due to sudden throwing of the body weight upon the inverted foot. Usually one foot only is affected and usually only one bone; Nion gives the proportions of 112 : 98 : 17 for the second, third, and fourth metatarsals respectively. That some bones are more frequently involved than others is due to their anatomical disposition and the relative parts they play in bearing the body weight. The great diversity in the strength and projection of the metatarsal bones is readily apparent on examination of a large number of skiagrams. It seems that the head of the fifth always projects least and the fourth next, but that the projection of the heads of the three inner bones is subject to much variation. The third head may reach the same level as, but never exceeds, that of the second, and either or both of these bones may extend beyond or fall short of the first. The second metatarsal bone is more subject to variation than any other; it may be the strongest, next to the first metatarsal, or it may be the weakest. On the other hand, the third metatarsal is always a weak bone. The metatarsals as a whole are so arranged as to complete the anterior portions of the longitudinal and transverse arches of the foot, the second and third occupying the highest plane. At their bases they all unite with the tarsus, but the first has the widest range of movement, the fifth next, and the fourth next, whereas with the second and third, as Hepburn points out, "an extremely powerful interlocking of parts is provided which places any marked independent movement of these metatarsal bones entirely out of the question." Again, in the x-ray picture of a normal foot it will be seen that the second and third metatarsals are practically parallel, and run in a strictly antero-posterior direction, whereas the others radiate obliquely forward.

This disposition of the bones provides for the transmission of the body weight by the astragalus along a line passing through the second metatarsal head.

When standing the weight is borne by the two feet, the chief points of support in each foot being the os calcis, the shaft and head of the fifth metatarsal, and the head of the first metatarsal. During ordinary walking, however, the main points of contact with the ground are continually changing. First the heel is brought down, then the sole, and then the body is levered forward on the metatarsal heads. During this last part of the step the four inner metatarsals and their toes are the chief points of contact, with the second and third forming the most direct anterior supports of the longitudinal arch of the foot, and consequently subject to very direct pressure. That this is so is shown by the boots of people with normal feet, from which it appears that the sole is most worn about the middle, at a point corresponding with the heads of the second and third metatarsal bones. Frequently there is also a callosity in the corresponding position on the sole of the foot. It is during the successive weighting of the metatarsal heads that overstrain is produced. The feet of the vast majority of recruits quickly accommodate themselves to the rigours of route marching, but occasionally there is a breakdown, either in the direction of flat-foot or metatarsal overstrain, or both. In these the extra loading due to the pack, the fatigue induced in the small muscles of the foot, and the roughness of the ground traversed are cardinal causes. With every unevenness of the ground the sole of the boot becomes slanting, and the tendency is for the mid-metatarsus to become more heavily weighted, and occasionally one bone more burdened than the others. This is further promoted by the lessened co-ordination between the metatarsal bones as the result of tired muscles and the generally diminished sensibility of the foot induced

by fatigue. The frequency of fracture of the second and third metatarsals is due to their commonly slender length, their fixity, their direct forward projection, their lie in the transmission line of body weight, and the part they play in the leverage action of the foot. The fourth is less often affected because it is more mobile, and subject to less direct stress; the first escapes because of its strength and mobility, while the fifth, which is fairly strong and mobile, likewise escapes because it is the least strained during the forward lifting of the body.

In the diagnosis it should be remembered that the usual history given is that the symptoms developed gradually during a march, and that rarely is there any account of the accident. The pain is localized to the metatarsus, and by running the fingers along the bony shafts a very sensitive spot will be found in one of them. If a fracture occurs discoloration of the skin due to extravasation of blood may be present, and possibly crepitus elicited. Swelling of the foot is usually a prominent feature, whence the name "foot-swelling," given to the complaint when its pathology was still uncertain. The diagnosis can only be definitely established by the *x* rays. A skiagram may show a fracture and possibly even callus formation, the break generally being in the anterior half of the shaft. If there be no fracture, periostitis may be present, shown by vagueness or irregularity of outline, or swelling of the shaft of the bone. In this connexion it is interesting to note that Momburg found in some old-standing cases definite spindle-shaped thickenings of the shaft of a metatarsal, and he also notes thickening of the compact bone at the expense of the cancellous tissue by a process of osteo-sclerosis. These osseous thickenings may occur by way of compensatory adaptation in the feet of soldiers who have never complained of any symptoms or of any unusual difficulty in marching. It may be mentioned that statistics show that troops drawn from mountainous districts suffer less from metatarsal overstrain than those from the lowlands, for hill climbing tends to strengthen the metatarsus and pedal muscles, and possibly to promote a better power in dorsiflexing the foot. This climbing influence is best seen in Alpine guides, who usually have an extreme range of movement at the ankle-joints.

The broad lines of treatment have already been given in the case quoted—that is, complete rest off the feet for four weeks and the application of massage and hot air. The heating chamber should be at a temperature of 300° F., and the limb well protected by wool and flannel bandages; the treatment should occupy from thirty to forty minutes daily. As an alternative treatment passive hyperaemia may be adopted. A Martin's bandage is applied around the leg just above the ankle, so as partly to obstruct the venous flow from the foot. The bandage should be arranged so as to cause no discomfort, and the foot must feel warm during the whole sitting. This treatment should be applied at first for an hour daily and gradually extended to several hours; at Spandau it is even persisted in for twelve hours continuously.

At the end of one month, or less in the case of periostitis, the patient is allowed to get on his feet gradually. Ten days after this, if there is no pain and no swelling, he is allowed to walk freely. In the case of fracture, the transverse "football" bar, referred to above, is worn for a few weeks, and may then be discarded. Care should be taken that a properly fitting boot is provided. The present army boot is a fairly good shape and it has to be strong, but one sometimes sees, after much wear, either a distorted upper or a "rocker" sole—that is, a sole which is extremely convex from front to back. These faults, which interfere with the proper play of the toes, are easily remedied by stretching and straightening the shoe on a last.

I am indebted to Dr. R. L. Rawlinson for enabling me to examine a large number of skiagrams.

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THE French Government has decided to establish a school of medicine at Dakar, French West Africa, on the same lines as those already in existence in French Indo-China and Madagascar.

THE VALUE OF AMYL NITRITE INHALATIONS IN THE DIAGNOSIS OF MITRAL STENOSIS.

By R. A. MORISON, M.D., Lieut. M.R.C., U.S.Army.
(From the Military Heart Hospital, Colchester,)*

MITRAL STENOSIS develops insidiously and symptoms of a really incapacitating nature are frequently absent until the lesion is well advanced. In soldiers it is often discovered accidentally during the routine examination of a man reporting sick for a trivial complaint. In young soldiers, when very early and uncomplicated, it is unaccompanied by subjective symptoms which characterize the state.† The number of border-line cases seen appears to be remarkable, until it is remembered that the strains to which the men are subjected are precisely those calculated to call forth symptoms in early cases. Advanced mitral stenosis has been largely kept out or sorted out of the army, and patients who suffer from "irritable heart" in the absence of structural change very frequently present such signs as accentuation of the first heart sound, accentuation or reduplication of the second heart sound, signs which are credited with significance in the early diagnosis of mitral stenosis. In dealing with military patients a clear decision is most desirable; it is imperative when, in sorting cases bearing cardio-vascular diagnosis, tolerance of exercise is largely relied upon.‡ Men with structural heart disease are to be guarded against over-exertion. We may take a diastolic (presystolic) rumble or thrill, or both, to be the most positive and convincing sign of mitral stenosis, and it is at present inadvisable to diagnose this lesion in the absence of such a murmur. Any method, therefore, which accentuates such a murmur, or discovers it, must be of considerable value.

Amongst patients who fall near the diagnostic border-line (a border-line which it should be clearly understood varies according to the skill, experience, and opinion of the observer) there are a number of patients who present no suggestion of mitral stenosis when they are examined standing, but who present unequivocal signs while lying down; there are a number who present inconclusive signs of stenosis while standing, but signs of stenosis become clear on lying; still a further number who exhibit no conclusive signs standing or lying, but in whom the diagnosis is no longer in doubt while they lie after exercise. At the Military Heart Hospital at Colchester all cases are auscultated standing and lying, and lying after exercise, and a considerable number of presystolic murmurs are detected which would otherwise escape observation.

Amyl nitrite is used as a further test in doubtful cases; its action, like that of exercise, is to increase the flow of blood through the *A–V* ring, a change which favours the production of the murmurs in question. We desire to give our early impressions of the experience with amyl nitrite. The observations are not based upon *post-mortem* evidence, but upon the assumption that a clear presystolic murmur signifies stenosis in the absence of aortic disease. On that assumption, it is clear to us that amyl nitrite will often bring to light a clear presystolic or full diastolic murmur in a patient lying on his back, who had exhibited no murmur previously, and will thereby render an early mitral stenosis diagnosable.

In twelve cases in which presystolic murmurs were suspected, but in which they could not be recognized with any degree of certainty, amyl nitrite (inhaled from a 3 minim capsule until a reaction was evident) brought forth unmistakable murmurs in six instances. Amongst the first signs of early mitral stenosis is an accentuated first sound; from this sign the sounds pass to a simple reduplication with accentuation; to perhaps a triplication, and thence to what may, or may not, be termed a murmur, according to the idiosyncrasies of the examiner.

The point which is to be emphasized is that amyl nitrite, in a large proportion of cases, will raise the scale of the signs, bringing them nearer to a point where a diagnosis becomes certain.

* Observations undertaken on behalf of the Medical Research Committee.

† The actual proportion of clearly diagnosable mitral stenosis amongst such patients is approximately 4 per cent.

‡ It is inadvisable that the exercise tolerance tests should be applied in mitral stenosis, and those who suffer from this lesion are to be sifted out.

As to the cases in which amyl nitrite has the reverse effect, and produces a lowering of the scale, in some cases abolishing a diastolic murmur, we speak with more diffidence, yet it is extremely suggestive that this reversal of the usual effect has been witnessed for the most part in cases in which aortic regurgitation was undoubtedly present, and where consequently the murmur may have owed its origin to a different cause (Flint murmur).* Whether it will prove ultimately that the test serves to differentiate the Flint murmur remains for the future to decide; so far as military diagnosis is concerned, it is a point of lesser importance; the point for which publicity is desired is the usefulness of the drug in bringing out clear presystolic murmurs in cases in which mitral stenosis is suspected but not proved.

A PYLON, OR TEMPORARY ARTIFICIAL LEG.

BY

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AFTER amputation through the thigh or leg there is, as is well known, progressive diminution in the girth of the stump, owing to muscular wasting; consequently the "bucket" of an artificial leg, which fits accurately at the time of fixing, will in a few weeks become loose.

FIG. 1.—Plaster cast of stump (hollow).

It occurred to me that the bucket for a temporary leg might be made of papiermâché, which could be broken up and replaced or remoulded, if necessary, periodically, until the stump reached its minimal circumference.

It was believed also that by arranging for the end of the stump to be subjected to graduated pressure by padding the floor of the bucket, the weight-bearing power of the stump would be improved.

The main principles of the leg were explained to Mr. J. D. Danson, technical instructor in the curative workshops, Alder Hey, and as a result of his expert advice and experiments the temporary artificial leg here described was made.

An accurate cast of the stump, up to a height of 15 in., if available, is taken in plaster-of-Paris (Fig. 1); on to this plaster cast a layer of soft felt is sewn (Fig. 2); this in turn is covered with a layer of papiermâché, about $\frac{1}{16}$ in. thick. (The papiermâché is made by boiling in water disused tram tickets, paper, etc., straining, and mixing with whiting and glue.) A wooden base is fitted to the floor of the bucket thus formed, the paper bucket is then reinforced by four light metal bars, which are welded at their lower ends into a tube, into which is fitted the wooden peg (Fig. 3). If the bucket is made to fit a stump below the knee, the leg has a hinge-joint at the knee, to allow either a partial or complete range of movement at that joint (Fig. 5).

FIG. 2.—Cast covered with felt and papiermâché.

FIG. 3.—Metal rods which support the papiermâché.

The leg provides an accurately-fitting bucket for the stump. It can be fitted as soon as the stump is healed, and the use of crutches and the consequent risk of crutch-palsy obviated. The leg is not to be too light, so that the muscles may receive adequate training. The patient is early familiarized with the wearing of a bucket and also with the gradual transmission of his weight to the end of the stump; he can regulate the pressure by adjusting the thickness of the pad at the bottom of the bucket. The cheapness of the material permits of the renewal or remoulding of the bucket at a trifling cost.

FIG. 4.—Complete pylon (for thigh stump).

FIG. 5.—Pylon for leg with knee hinge.

* Thus out of ten cases of aortic disease in which a presystolic or diastolic rumble was audible at the apex, suggesting stenosis, the murmur cleared entirely under amyl nitrite in five instances.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE FARADIC CURRENT FOR THE IDENTIFICATION OF MUSCLES DURING OPERATION.

IN certain operations difficulty may be experienced when searching for structures which lie between separate muscles; for instance, in ligaturing the ulnar, radial, or anterior tibial arteries or in dealing with their corresponding nerves. Such operations are more common than usual now in consequence of war injuries, and the difficulty in defining the limits of two adjoining muscles is increased by scar tissue which naturally lies in the line of the operation.

Such operation can be much simplified by the use of the faradic current. This may be applied locally to the surface of one or other muscle before the fascia is divided or even before the skin incision is made, or it may be applied to the nerve above the field of operation if the muscles have a separate nerve supply. The current may be applied so as to give a series of twitches or the muscle may be kept in a state of contraction as long as is needed. Not only does this show the limits of each muscle, but it also makes the separation of the muscles easier if one is kept contracted while the other remains flaccid.

I recently had the opportunity of using this method in a case of bullet wound of the middle of the forearm in which the subsequently formed scar tissue had involved the ulnar nerve, causing typical ulnar paralysis and anaesthesia. On cutting down to the fascia in the line of the nerve no distinction could be made out between the flexor carpi ulnaris and the flexor sublimis digitorum; these muscles were also bound together by scar tissue. On applying the electrode to the ulnar nerve behind the elbow the flexor carpi ulnaris was at once defined, and, after the fascia was divided, there was no difficulty in

separating this muscle from the flexor sublimis digitorum, and the nerve was found and cleared from the scar which was compressing it.

All that is required is a small coil with battery and something to use as a sterile electrode in case it is wanted to stimulate the surface of muscle; the ordinary electrode suffices if the nerve is to be stimulated. Only a weak current is needed.

T. H. FOULKES, M.R.C.P., F.R.C.S.,
Lieut.-Colonel I.M.S.

THE EFFECTS OF ELECTRIC ARC WELDING UPON THE EYES AND SKIN.

MY attention was first drawn by a tramway engineer to certain effects upon the eyes and skin produced by electric arc welding. He was using the process for welding broken rails *in situ* to save labour and time. The mechanical results were excellent, but he noticed that the workmen, himself, and visitors who came to see the process were affected adversely. Briefly, the symptoms were intense lacrymation and eye tenderness. "The eyes felt as if the lids had been sandpapered." The conjunctivae were much injected. The symptoms did not come on until some hours after exposure, or until the eyes were closed. With repeated exposures the eyes appeared to become accustomed to the light. Reddening of the skin exposed, followed by smarting and peeling, also were noticed. With repeated exposure the skin became "sunburnt."

On my visit I noticed (1) that the light was intensely strong and white; (2) that a considerable amount of gas, smelling like ozone, was generated; (3) that much very fine carbon dust was blown about; (4) that the heat was great. An *x*-ray plate, enclosed in two light-proof envelopes, was fogged evenly all over, in spite of lead discs closely held by clips against it.

The cause of the conjunctivitis seems to be the intense light, and not dust, as the eyes were protected by glass. The presence of ultra-violet or N rays I do not think probable. Some form of secondary ray may be given off by the molten metal, but of this I am not competent to judge. The matter appears worthy of full investigation.

Southampton. OSCAR HOLDEN, M.D.

ACUTE YELLOW ATROPHY IN SYPHILIS.

I READ with deep interest in the BRITISH MEDICAL JOURNAL of January 19th a paper on this subject by Professor Stuart McDonald.

As I have been in France for the last three years my notes are not at hand, but I would like to mention a very important fact regarding his suggestion "that acute yellow atrophy may result as a direct consequence of treatment by 'salvarsan' preparations." As Professor McDonald says, acute yellow atrophy is one of the rarest diseases to be met with in medicine, a statement with which all physicians will agree. I have personally conducted over 6,000 *post-mortem* examinations in a hospital and asylum experience in the last thirty years, and I have only met with seven cases of acute yellow atrophy, all of which have been recorded. In all these cases there was a definite history of recent syphilitic infection, and in only two of them had there been any mercurial treatment. All the cases occurred in adults between the ages of 20 and 43, four being males and three females.

Whatever the exact etiology of this fatal disease may prove to be, it seems certain that syphilis plays the most important part, but I cannot see any justification at present for associating it in any way with treatment by salvarsan—by far the best means we have to-day for the treatment of recent infections—and I am sure that Professor McDonald does not wish to convey that impression.

NATHAN RAW, C.M.G., M.D.,
Senior Physician, Liverpool Hospital, France.

"IRRITABLE HEART."

MY experience of the class of cases discussed by Dr. Lewis (p. 363) was gained at a Mediterranean station, where we dealt with the men in an earlier and less selected state than that in which they would come under his care. Here we had gathered together all the cases classed as D.A.H. out of a big camp. Most had served at Salonica, Gallipoli, or Egypt. Very many had had malaria.

After careful examination they were all collected in separate marquees and placed under a physical instructor, and each morning were given gentle physical exercise for a period of ten minutes, the pulse, respiration, and temperature having previously been taken. At first the medical officer in charge of the cases was present during the entire period of drill, and made careful notes of any cases which did not seem to stand it well. After drill the men lay down for at least ten minutes; the pulse and respiration were taken first after the exercise, and again after three minutes' rest. After seven days' training in milder exercises the whole squad was examined, and those who regained their normal respiration and pulse after three minutes' rest were promoted to more complicated exercises. After a further week those who were improving were made to do a combined exercise for double time.

Thus three classes were kept going, and at least once a week the medical officer examined every case carefully to ascertain if he were fit for the longer and more severe exercise. I also gave the men an extra ration of sugar, which appears to have a synergizing effect on the cardiac muscle.

To summarize results, we found after treatment:

1. 70 to 90 per cent. of the cases labelled "D.A.H." were fit for at least light duty, and of these 20 to 30 per cent. were fit for ordinary duty.

2. A very large proportion of all the cases were fit for ordinary base duties.

3. The only real practical test of the fitness for duty of a man labelled "D.A.H." is the time in which, after a given exertion, he regains his normal pulse and respiration rate. If this be under three minutes he may be regarded as fit for at least light duty.

4. Mere rapidity of pulse may be ignored as of no necessary pathological significance.

5. Many of the cases called "D.A.H." are due to excessive thyroid activity, and not to any cardiogenic conditions. The drill or gymnastic treatment seems to point to this, for it invariably aggravates this condition. It does not follow they are unfit for duty.

6. Ordinary treatment of D.A.H. cases in ordinary hospitals, after, perhaps, a couple of weeks' rest in bed, is not merely useless, but harmful, unless some form of gymnastic exercise be added.

J. C. MCWALTER, M.B., F.R.F.P. and S.Glasg.

GALYL IN MALTA FEVER.

So far as I know, the treatment of Malta fever by galyl or salvarsan has not yet been recorded. The two following cases are therefore worth reporting:

CASE I.—A strong healthy man, aged about 35, in easy circumstances, with a comfortable home and perfectly sanitary surroundings, and not overworked, had suffered for about four years from attacks of fever at varying intervals; occasionally the interval was three months, but often as little as one month. The fever usually reached 102° F., but sometimes even 104°. Though Malta fever was suspected early in the course of the case, blood tests made by several bacteriologists did not confirm this suspicion, and only after about two years was a positive Malta fever reaction obtained. Inoculation with sensitized Malta fever vaccine was then carried out most conscientiously for more than a year. At times the inoculation seemed to be helping, but progress was very slow and uncertain.

About October, 1916, severe attacks began again in spite of the inoculation, and returned every month. The patient had lost a serious amount of weight, was weak and languid, and felt hardly able to conduct his business. On January 6th, 1917, I gave him an intravenous injection of 0.3 gram of galyl dissolved in 3 ounces of freshly distilled water. Since then there has been no return of fever, the lost weight, strength, and energy have all been regained, and the patient is to-day, ten months after the injection, in perfect health.

CASE II.—An elderly hard-working man consulted me for intractable lumbago and sciatica of about nine months' duration. His local doctor had diagnosed Malta fever, and had treated him with many drugs but without avail. A blood test confirmed the diagnosis. On July 4th, 1917, I gave him 0.3 gram galyl intravenously, and he returned home two days after. When next I saw him, early in October, he told me the treatment had been a great success, all his pain had disappeared within a few days, and he was soon able to walk about and do his work as usual.

A line of treatment cannot be based upon two cases, but the results in these are sufficiently striking to suggest that salvarsan or galyl should take a prominent place in

the treatment of Malta fever. Case 1 is especially noteworthy, for in spite of the very favourable conditions under which the patient lived, and in spite of frequent and prolonged holidays at the coast (the oldest Kimberley remedy for "camp fever," a good percentage of which we now believe to have been Malta fever), he was no whit better at the end of four years, and the effect of the galyl was immediate, and so far seems to have been permanent. Any one has had to deal with Malta fever will realize what an immense help a remedy which acts quickly, and gives a permanent cure, would be in this tedious disease, so aptly called "sluipende koors" (sneaking fever) by the Dutch farmers.

E. OLIVER ASHE, M.D.Lond., F.R.C.S.Eng.,
Surgeon to Kimberley Hospital.

Reports of Societies.

HYPOTONIA AND TROPHIC CHANGES.

AT a meeting of the Section of Neurology of the Royal Society of Medicine, on January 24th, Captain GEORGE RIDDOCH contributed a paper on muscular hypotonia and changes in nutrition associated with lesions of the posterior columns of the spinal cord and the posterior roots. Defining reflex muscular tone as postural contraction (Sherrington), he pointed out that tonus was found in those muscles which maintained the animal erect; it depended upon a reflex system excited by afferent impulses arising during tension and stress from muscles and tendons. The controlling centres of this system were situated in the mid-brain, pons and medulla. The activities of this system were adjusted through impulses from the labyrinth and by the cerebellum. The peripheral fibres ran in the deep muscular nerves. Hughlings Jackson taught that rigidity of the affected limbs in cases of hemiplegia was due to unantagonized cerebellar influences. The activities of this reflex mechanism might be entirely unconscious. Head and Thompson stated and emphasized that "sensation may never be evoked until some disturbance of equilibrium produces impulses which, passing up sensory paths, reach the highest centres concerned with sensation." Their findings suggested the close association through collaterals of the posterior columns and the afferent cerebellar tracts. Whenever hypotonia followed lesions of the posterior columns, it was always associated with defective appreciation of space; but in hypotonia resulting from lesions of the posterior roots, at a level where all sensory impulses were still in their primary grouping, all aspects of sensation were affected, and the area of sensory loss was determined by the number of the roots involved. Captain Riddoch quoted instances of cases to show that by an investigation of the condition of sensation in the affected parts the level and the extent of the lesion giving rise to the hypotonia could usually be determined. He described some of the trophic and vasomotor changes frequently observed in the affected hands after injury to the posterior columns of the spinal cord in the region of the cervical enlargement; in character these changes closely resembled the associated trophic and vasomotor changes found in cases of causalgia of the median nerve. From the sensory picture of the hands he adduced that trophic and vasomotor changes of this type were due to damage to the posterior roots involving the "visceral" afferent sympathetic fibres belonging to the sympathetic nervous supply of the hand, and not to any injury of the spinal cord. The afferent fibres of the sympathetic involuntary nervous system probably had more or less the same regional distribution as the efferent fibres, and passed into the spinal cord by the segmentally corresponding posterior nerve roots. Such facts might explain the minimal nutritional and vasomotor changes in the legs and feet after injury to the lower lumbar and sacral posterior nerve roots, where hypotonia was present and sensation was definitely affected but not completely abolished.

TRINITROTOLUENE POISONING.

AT a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine, held on April 12th, the President (Dr. G. S. BUCHANAN) in the chair, Dr. W. J. O'DONOVAN (Chief Medical Officer, Welfare and Health Section, Ministry of Munitions) read a paper on the epidemiology of trinitrotoluene poisoning, which was in effect a continuation of a chapter in preventive medicine begun at a meeting of the society in January, 1917. Dermatitis, gastritis, and toxic jaundice produced by T.N.T. were described, and stress was laid on the necessity of regarding all cases of purpura or of uterine bleeding with the gravest suspicion, as these symptoms might represent the onset of aplastic anaemia. Thirteen cases of these grave anaemias were known to have occurred and only one was alive. Toxic jaundice was now rare and the death-rate had fallen considerably. In stamping out toxic jaundice, and with it the large amount of minor illness due to T.N.T., the co-operation of the engineers was invaluable. Clean working was the cardinal rule, and automatic working was the only way of securing this with thousands of unskilled female workers. The various processes in which T.N.T. absorption might occur were illustrated by photographs, and the various types of automatic machinery that had largely helped to eliminate hand contact were shown in the same way. Casein varnish had not proved a success in practice; respirators were of little or no service, and the use of gloves, except for hot or rough work, was discouraged; workers could not keep the interior of gloves free from T.N.T., and a poultice of T.N.T. on a hot hand was the ideal way to secure absorption. Attention was drawn to the variability of the incidence of the effects of T.N.T. at the same factory; this suggested that the pathological ill effects might be coincident, but were not necessarily dependent on one another. The way in which factories were separately attacked after periods of freedom and the absence of fresh cases under constant working conditions suggested that two factors came into play—first, the toxic effect of T.N.T., and secondly, possibly portal infection. The work of Opie on the production of experimental cirrhosis of the liver in animals, and a recent paper by Dr. Stuart McDonald[1] on acute atrophy of the liver after the administration of salvarsan, lent support to this view, but the question remained open. Attention was drawn to a publication by the late Mr. Simeon Snell in the BRITISH MEDICAL JOURNAL of March 3rd, 1894, dealing with poisoning by dinitrobenzol, and it was shown how closely parallel were his recommendations to those of the T.N.T. Committee appointed by Dr. Addison when Minister of Munitions; it was not known, however, that any cases of neuritis or of amblyopia due to T.N.T. had occurred. The chief precautionary measures—alternation, periodic medical examination, clean working, and ventilation—were explained and detailed references were made to managerial, explosive, and wages aspects with which these points are bound up. Recognition was paid to the services of the T.N.T. factory medical officers, working continuously for months in isolated areas with none of the amenities of ordinary medical life.

The paper was discussed by Dr. LEGGE (Home Office), Dr. COLLIS (Ministry of Munitions), Lieut.-Colonel O'REILLY, R.A.M.C., Dr. CHRISTINE PILLMAN, and Dr. MACNALTY.

Reviews.

COUCHING FOR CATARACT: ITS DANGERS.

THE operation of couching for cataract is one of the most ancient procedures known to surgery, the earliest description of the method being that given by Celsus, a contemporary of Christ's. Besides its antiquity it is perhaps one of the operations which is most frequently performed for the relief of cataract, since this degeneration of the eye is so common in India, and the nature of the operation lends itself readily to the practice of wandering native practitioners. Further, it is not so long ago that the operation was practised in Western countries. For all these reasons Colonel ELLIOT's book on *The Indian Operation of Couching*[1] is of great interest, for he deals with the nature and results of the operation, particularly at the hands of untrained and often quite ignorant and primitive folk

[1] BRITISH MEDICAL JOURNAL, January 19th, 1918.

[2] *The Indian Operation of Couching for Cataract*; incorporating the Hunterian Lectures. By Robert Henry Elliot, M.D.Lond., Lieut.-Colonel I.M.S.(retired). London: H. K. Lewis. 1917. (Roy. 8vo, pp. 94; 45 figures. 7s. 6d. net.)

whose only knowledge is that gained through the handing down of an old tradition.

Colonel Elliot has divided his book into sections dealing with the history of couching, the technique of the operation, and the Indian coucher and his habits; there is a chapter on statistics of observed results, one on the pathological anatomy of couched eyes, and, lastly, chapters on the diagnosis and clinical symptoms. In each he has done full justice to his subject, and he is to be congratulated on the facility with which he introduces his reader into a lively association with his work and experience in the East. One of the difficulties of an investigator is illustrated by his statement that he had never been able to see a coucher at work during his twenty-five years in India, yet his knowledge of the results of the operations of these men was direct enough in his hospital work.

The charm of the operation to the uninstructed lies in two facts: it is very easy to perform, and the results obtained are immediate. The hand is passed over the eye, and lo! the blind man sees. The needle or thorn is thrust suddenly through the cornea or sclera of the eye, according to whether the anterior or posterior operation is performed, so as to penetrate the lens; and in the same movement with a turn of the wrist the lens is thrust down into the posterior chamber of the eye and the pupil is clear. Dirt and injury due to clumsiness account for a vast number of speedy losses of sight. But even with the best of immediate results there is the steadily approaching Nemesis of total and irretrievable blindness, owing to the dislocated lens acting as a foreign body within the eye and setting up chronic cyclitis. A summary of the Hunterian Lectures given by Colonel Elliot last year was published in our columns at the time (1917, vol. i, p. 334), but in this book the full story is told, and the moral is drawn. Cataract in India strikes down a man at maturity, when his life's work is beginning to have its full effect, and the operations of the quack destroy his one chance of recovery. Prohibition might be desired, but, as the author says, the people are not ready for it. But there should be (1) the systematic dissemination of knowledge through Government agencies amongst the people; (2) the improvement of ophthalmic education. A movement in these two directions is already on foot, and in time will bear much fruit.

THE FUTURE OF THE MEDICAL PROFESSION UNDER A NATIONAL HEALTH MINISTRY.

A MEETING of the Fellows of the Royal Society of Medicine was held on April 15th, Sir RICKMAN GODLEE presiding, to discuss the future of the medical profession under a Ministry of National Health. The subject was opened by Dr. J. F. GORDON DILL, who said that a central authority to deal exclusively with all matters of national health should be established under a Minister of Cabinet rank, and to this administration the various departments now engaged upon health matters should be transferred and as far as possible fused. The secretaries and higher personnel should be qualified medical men, and there should be an administrator-general for the kingdom, national administrators for each country, and inspectors of preventive medicine and directors of clinical medicine for each division or county. The divisions should be made up of so many districts, with a medical officer allotted to each, though in suitable centres of population contiguous districts might be pooled. The district medical officer would reside in the district, be the family doctor for most of the community, and keep such records and make such returns as might be required. Consultants and specialists should be appointed to areas of suitable size and be the visiting physicians of the hospitals in those areas, and central laboratories should be established in charge of resident or visiting pathologists. Dr. Dill also discussed the terms of service of the medical officers, the responsibility of the peripheral executive to the central administration, and the desirability that, along with such a state system, no limitation should be imposed on freedom of choice, either of doctor or patient.

Sir ARTHUR NEWSHOLME said that state institutional measures for dealing with disease had grown in a remarkable manner during recent years. Of the 300,000 hospital beds (including asylum beds) in England and Wales, 170,000 were under the public health authority and 96,000 under the Poor Law authority. With this development had arisen such arrangements as school medical inspection and clinics, public treatment for tuberculosis and for venereal diseases, maternity and child welfare work, and, not least, the vast insurance service, with one and a quarter millions spent annually on maternity benefit, three-quarters of a million on sanatorium benefit, and four and two-fifths millions on the payment of medical practitioners for domiciliary attendance. Any satisfactory medical service in the future must be as readily available to the poor as to the well-to-do, not only in respect to consultation and treatment, but also in respect to laboratory facilities and skilled nursing. There must be increased collaboration between voluntary hospitals and private practitioners. There must be more team work between consultant and general practitioner and between nurse and doctor, and economy of effort might be effected by the proper utilization of less skilled persons under fully qualified supervision.

Sir BERTRAND DAWSON said that the feeling that some change was needed antedated the war. There was a growing opinion in the community that the best treatment of disease and the measures for securing health must be available to all by right and not by grace. Medicine in this respect was only repeating the history of national education. But the maintenance of health and the cure of disease were becoming increasingly complex and costly, with the result that the best treatment would be decreasingly available for the community at large; yet not only was there the demand of the public that the best treatment should be made generally available, but there was also the feeling on the part of the profession that it must give its best in all cases, and the only way out of the difficulty was some degree of state support and state control. Neither in private practice nor in hospitals would it be possible to continue altogether on the voluntary basis; every new invention, for instance, added to the expense of hospital upkeep. There were three possible forms of state aid: (1) To make the medical profession a salaried civil service. With this he could not agree. In no profession was there such a difference between the minimum and the best, between what a man could get on with and what he might do if he lived up to his ideals. That intensive effort, which at once made medicine so exhausting and so inspiring, would not be encouraged by a state-salaried service. (2) To amplify the insurance system, with its underlying principle that the sick should be partly paid for by the state and partly by the individual—at present a cumbersome method, but one which had possibilities. (3) The state endowment of fabric. Explaining what he meant by this last, Sir Bertrand Dawson said that curative and preventive medicine must come together in thought, teaching, and organization, and it was important not to multiply specialists too much or to deprive the general practitioner of the things that made his profession interesting. The general practitioner in a small township should be in charge of both the preventive and the curative treatment, and although an increased proportion of his earnings would be by salary, he would still be a free man as regarded his patients, while his local authority would give him every sort of encouragement in return for his work by providing him with a collection of buildings and equipment.

Dr. BENJAMIN MOORE pleaded for a whole-time national medical service, with local control in the various branches according to the needs of the district, and argued that there would be an even fuller choice of doctor under a whole-time service than there was at present. Dr. LAURISTON SHAW thought that consultants should confine themselves to consultative work, and that their relation to the general practitioners should be as uncompetitive and cordial as that between barristers and solicitors. Sir RICKMAN GODLEE, in closing the discussion, said that as a man at the close of his professional career, he might be expected to look askance at the rising tide of state control, but he hoped there would still remain some little bays and inlets for those who shared his own professional ideals.

SURGEON-GENERAL RUPERT BLUE, of the United States Public Health Service, has asked Congress to appropriate £60,000 to be applied in establishing a Sanitary Reserve Corps whose function it will be to combat outbreaks of disease both in time of war and in time of peace.

British Medical Journal.

SATURDAY, APRIL 20TH, 1918.

CASUALTY CLEARING STATIONS IN MOBILE WARFARE.

THE great lesson of the war with regard to the treatment of the wounded man has been that the earlier and more efficiently his wounds are dealt with surgically the more rapid, certain, and complete is his recovery. The tendency, therefore, has been to operate on an increasingly large proportion of cases at the casualty clearing stations, which as a rule provide the earliest possible stage for carrying out radical treatment. During stationary warfare the accommodation provided in these units has increased enormously, to four and even six-fold in many cases. Many of the stations had bedsteads as long ago as September, 1916—in some cases, we believe, six months earlier—and probably most of them now have a good many. We have heard of as many as 150 to 200. They are used especially in the resuscitation wards, which have often been described, and for the more seriously wounded—as, for instance, chest wounds, and fractures of the femur. The results obtained at these stations during the last year and a half or two years have more than justified this policy.

A little reflection on the experiences of the past few weeks will show how easily the trials the wounded endured might have been aggravated and their chance of recovery destroyed had the arrangements entailed delay in the treatment of wounds. It is difficult to over-estimate the saving of life and of limb which has resulted from early efficient treatment, and the real military help which can be given thereby, in that lightly wounded men have a vastly shortened convalescence. Briefly put, a lightly wounded man successfully operated on at an advanced casualty clearing station may become an active soldier again in a comparatively short time, whereas if treatment be delayed he may be of no further use to the army, and may be more or less crippled for life. The economic value of the work done at the casualty clearing stations to the army in the first instance, and afterwards to the nation as a whole, is very high.

The development of casualty clearing stations during the last year or two of almost stationary warfare has naturally followed lines which adapted them to the conditions existing, but if we are to look forward to periods of open warfare some of their arrangements will no doubt undergo modification. The original plan was that clearing hospitals, the forerunners of casualty clearing stations, should be accommodated in suitable buildings if available, or in tents. Suitable buildings have not, we believe, very often been available in recent times, and in setting up casualty clearing stations huts have sometimes been used in place of tents. Such huts required several days and many men to erect and nearly as long to dismantle, to say nothing of the difficulty involved in their transport. Huts have to be abandoned, along with other heavy impedimenta, during a rapid retreat under pressure of the enemy.

To meet a period of more mobile warfare advanced hospital units will have to be, as far as possible, correspondingly mobile, though movement may be necessary only at intervals measured by months. It would be a grave misfortune were surgical opportunities during such intervals to be curtailed in any serious way. Very many of the operations performed in casualty clearing stations are of the most serious and difficult character conceivable, and such as a surgeon is only justified in undertaking if he can command the essential appliances of his craft. Among these is an operation room properly constructed and equipped, and capable of being kept surgically clean. It is, we believe, the general opinion of those who have had practical experience that to fulfil these conditions, should no suitable large room in a permanent building be available, a wooden structure is necessary. If enemy action enforces a move, this wooden operating room must usually be abandoned. It is apparent, therefore, that if the best surgical treatment is to be carried out at what has been found to be the best time, the casualty clearing stations cannot be made so mobile that, in the event of rapid retreat, a proportion of the equipment will not be lost.

The authorities are, therefore, faced with the alternatives that either they must sacrifice the interests of the wounded man and all that is entailed thereby or they must be prepared to lose some equipment. We know that the nation would have no hesitation in its choice between these two alternatives. We do not doubt that the medical authorities will find a way to adapt the fabric and equipment of the casualty clearing stations to the special needs, so that the very best surgical treatment shall be available as early as hitherto, while at the same time such mobility is regained for these units that only the minimum loss of material will result. Waste must always occur in war. The loss of guns does not deter the fighting man from replacing that loss with improved weapons and distributing them where they will have greatest effect.

We feel that we can safely leave these momentous decisions in the hands of those whose practical experience during this war best enables them to cope successfully with all contingencies, and that they will know how to win fresh laurels for the Royal Army Medical Corps.

THE AUTOMATIC BLADDER, MASS-REFLEX, AND OTHER PROBLEMS.

THE advance of medicine depends partly on clinical experience and largely on special investigations carried out in laboratories, both in direct relation to disease and on other lines. It is now generally recognized that pure physiological research undertaken to increase scientific knowledge, though not at once obviously applicable to the needs of medical practice, sooner or later makes the clinician its debtor. On the other hand, the work of the active physician and surgeon, though often of help in elucidating the problems of physiology, is rarely of such an exhaustive and far-reaching character as that of Dr. H. Head and Dr. G. Riddoch recorded in the current number of *Brain*.[1] Clinical research of this kind demands a special training and a devotion of time and energy that are only exceptionally available; it is therefore of peculiar value, and to some extent may redress the balance of debt to our physiological colleagues.

Utilizing the unexampled opportunities afforded by the casualties of the war for an intensive study of the phenomena of gross lesions of the spinal cord, Dr. H. Head and, under his inspiration, Dr. Riddoch, the medical officer in charge of the Empire Hospital,

[1] H. Head and G. Riddoch: The automatic bladder, excessive sweating, and some other reflex conditions in gross lesions of the spinal cord, *Brain*, London, 1917-18, xl, 149-263. G. Riddoch: The reflex functions of the completely divided spinal cord in man, compared with those associated with less severe lesions, Ibid., 264-402.

Vincent Square, have carried further Professor Sherrington's work on the decerebrate animal, particularly as regards the problems of postural co-ordination. While the object of the authors is to consider the physiological principles underlying the clinical manifestations, the practical outcome of their careful observations on these paraplegic patients is very important, especially as regards the vesical condition which has such an essential bearing on prognosis. After a severe spinal injury complete retention may, if a catheter is not passed, be succeeded by cystitis and death before any signs of the complete act of automatic micturition can occur; if a catheter is passed so that overdistension and infection of the bladder are prevented, retention usually passes off, and eventually the bladder automatically empties itself. The bad effect of overdistension of the bladder must be borne in mind in washing out, for considerable pressure, such as may be obtained by raising the vessel to a height of several feet above the bed, easily overcomes the contractile power of the bladder and so only adds to its contents. The "automatic bladder" may in favourable circumstances—namely, the absence of cystitis, toxaemia, and fever—become established after a complete transection of the cord and also after complete destruction of the cauda equina; but there is the essential difference that when the automatic bladder exists independently of the spinal cord it is impossible to influence it reflexly by stimulation. The subject of the innervation of the bladder and urethra is reviewed by Dr. Fearnsides as an appropriate introduction to these observations.

When the control of a segment of the spinal cord is removed by a complete division, the discriminating and specific character of a normal reflex, such as the scratch reflex, is lost, and after the shock has passed off the lower part of the cord gradually regains its reflex activity, which is now uncontrolled; as a result stimulation leads to widespread discharge of motor energy overflowing into visceral channels; thus, stimulation of any part of the skin of one lower extremity, or even of the abdomen, may lead to characteristic flexor spasm extending to both sides, evacuation of the bladder and rectum, and excessive sweating. In this reflex the bladder is emptied when it contains less than half the amount that the automatic bladder usually discharges; and this "facilitation" of the automatic bladder is a good index of the widespread effect of a stimulus, and is seen only when the postural reflexes are absent, as in complete division of the cord. The excessive sweating—a remarkable feature of these cases—is due to activity of the nervous system below the lesion in the cord, and can be excited by almost any stimulus sending afferent impulses into the cord below the lesion, such as scratching the skin, washing out the bladder, or an enema. The massive or "mass-reflex" is part of the primitive protective reflex to pain, and not part of the normal postural reflex, whereas in cases of incomplete division of the cord the lumbar centres may still be inhibited by the pre-spinal centres and the postural reflexes persist.

In his complementary article on the reflex functions of the completely divided spinal cord in man (based on eight cases proved at operation) compared with those associated with less severe lesions, Dr. Riddoch shows that the clinical picture hitherto given as characteristic of a complete division of the cord is imperfect, and describes three stages: (1) of muscular flaccidity, corresponding with the period of deep depression from "spinal shock," and lasting from one to three weeks, with absence of superficial and tendon reflexes, toneless muscles, and retention of urine and faeces; (2) of reflex activity, with the mass-reflex; and (3) of gradual failure of the reflex functions of the isolated spinal cord due to toxic febrile complications; the mass-reflex is no longer obtained, and the reflexes disappear, the extensor tendon jerks going first. There are no manifestations absolutely diagnostic of anatomical division of the cord, but some cases of severe damage to the cord with abolition of motion and sensation and with automatic action of the bladder and rectum show certain manifestations not present in cases with proved anatomical division of the cord. Movements of the flexor type were the only primary motor reactions observed in complete transection, whereas in the contrasted group of cases the involuntary movements may simulate progression or be entirely extensor. The clinical picture in complete division of the cord resembles that described by Babinski and Walshe as "paraplegia in flexion," and is comparable with that of the "spinal" animal, while their picture of "paraplegia in extension" is like that in the less severe spinal injuries, and comparable to that of the decerebrate animal.

MEDICAL PRACTITIONERS UNDER THE MILITARY SERVICE BILL.

THE Military Service Bill, which was read a third time in the Commons on Tuesday, April 16th, reached the Lords on Wednesday, and will, no doubt, receive the Royal assent before the end of the week. The first clause gives power by Order in Council to raise the age to 56 as respects men generally, but as the bill itself fixes the higher limit in the case of medical practitioners they will be subject to it probably before these words are in print. The position is one of some difficulty, and will require careful handling. We are therefore glad to learn that the Central Medical War Committee is already in conference with the Ministry of National Service and the Insurance Commissioners with regard to it. In the debate on April 12th on the part of the first clause which dealt with the special medical provision, the Minister of National Service said that the professional committees recognized under the Military Service Act, 1916, which had power to deal with claims for exemption made by duly qualified medical practitioners, had now been compelled to report that as the result of the withdrawal of medical men for the army the supply was very short. The number of practitioners available in every district had been ascertained, and it appeared that in some districts where young fit men were really as necessary as in the trenches (he instanced munition areas) the position had become serious. On the other hand, it was believed that there were in some residential cities doctors of the higher ages who were really in excess of local requirements. The professional committees agreed that many of them could probably be taken for work in the base hospitals, but Sir Auckland Geddes went on to say that appeals were being made to individual doctors to move into districts where the supply of medical practitioners was scanty. A certain number had, with great public spirit, responded, but more were required. At a much later stage of the debate, when the question of industrial conscription was raised by members of the Labour Party, Sir Auckland Geddes said that there was not the slightest intention to make use of powers the Act would confer to compel men to do things in civil life, and he repudiated any intention of devising a scheme of industrial compulsion. The context seems to us to show quite plainly that he was not thinking of the medical profession, that matter having, in fact, been settled on April 12th after a debate, which is reported at p. 462. We are not in a position to say exactly what may have been in the Minister's mind when he referred to the need

of inducing individual doctors to move out of residential into industrial districts, but we interpret his remarks to mean that the Ministry of National Service desires to put into force a system of substitution. Under such a system medical men in residential districts, where their services, it is considered, can be spared without injury to the civil population, would be expected to undertake work in other districts, either in the poorer parts of the same town or in some other town. We have no doubt that the response of the medical profession will be good, but we hope that it may be found possible to attain the desired result by way of what may be called "local substitution"—that is to say, a scheme by which a medical practitioner would undertake additional work in the neighbourhood in which he resides. The response, we feel sure, would be readier and more general were it not that the impression persists that many of those serving in the R.A.M.C. abroad, and even at home, are very far from finding their time fully employed. This point was made both by Sir Watson Cheyne, who was a member of the Committee of Inquiry which went to France last autumn, and by Major David Davies, who has been very persistent in asking for publication of the report of that committee. Sir Henry Craik, the member for the Universities of Glasgow and Aberdeen, also made a special appeal for the exercise of greater economy of resources on the part of the Medical Department of the War Office. He had, he said, received bitter complaints from medical officers eating out their hearts with anxiety to do work but could not find it; instead, they found themselves forced into some place where they were not fully used. Doctors, he said, were ready to accept the burden imposed by the clause if they could be certain that the use of their services by the army would be more economical and more effective than in the past.

THE DEMAND FOR AN INCREASED INSURANCE CAPITATION FEE.

THE special conference of representatives of Local Medical and Panel Committees, which was held on April 11th, is reported in the SUPPLEMENT this week. The outstanding question before the meeting was the policy to be adopted with regard to the demand for an increased capitation fee put forward by the last annual conference, and the Government's reply that no proposal for a general increase of remuneration could be entertained. Early in the proceedings the Chairman of the Insurance Acts Committee informed the conference that that Committee, after carefully considering the position in the light of all the information at its disposal, had come to the conclusion that while maintaining the equity of the claim for an increased capitation fee, the demand should not be pressed at the present moment. This opinion, it scarcely need be added, was based primarily upon the patriotic desire not to embarrass the Government in any way during a grave national crisis. In order to bring the matter to a clear issue it was decided to take at once a motion urging panel practitioners not to renew their present contracts next January. As an amendment to this, in the opposite sense, it was proposed that while still maintaining the justice of the demand for an increased capitation fee, and protesting against the tone of Sir Edwin Cornwall's reply, the conference, as a matter of patriotic duty, should not press the general claim at the present moment. This amendment clearly expressed the wish of the meeting, and, as a substantive expression of policy, it was carried by an overwhelming majority. While no one could be satisfied with the existing arrangement, the general feeling was obviously against any action which would increase the Government's difficulties in a national emergency, or might suggest to the public mind that medical practitioners put professional interests before their duty as citizens. The Chancellor of the Exchequer indicated, however, on March 15th that the Treasury was prepared to consider an equitable scheme for meeting the increased expenses of practice, especially travelling expenses, as well as proposals for increased remuneration, on the ground of the higher cost of living, for doctors with professional incomes under £500. The conference accordingly instructed the Insurance Acts Committee to take steps to secure such additional grants and to devise equitable plans for their distribution. It was further decided that the methods of distribution of all the available funds, and the general financial arrangements and terms of service, needed early reconsideration. Lastly, the report of the president of the Institute of Actuaries upon his investigation into the constitution of the central pool was received and approved.

THE POSITION OF SCIENCE IN EDUCATION.

A COMMITTEE was appointed by the Prime Minister in August, 1916, to inquire into the position of natural science in the educational system of Great Britain, especially in secondary schools and universities, and to advise what measures are needed to promote its study, regard being had to the requirements of a liberal education, to the advancement of pure science, and to the interests of the trades, industries, and professions which largely depend upon applied science. The chairman of the committee was Sir J. J. Thomson, president of the Royal Society, and the members consisted in about equal proportions of persons especially concerned in general education, in science, and in the application of science to industry. The medical members were Dr. Henry Head, F.R.S., and Professor E. H. Starling, F.R.S. The report of the committee, issued this week,[1] fills, with its appendices, eighty-four pages, and will afford food for much careful study. It is concerned mainly with England, but it contains short sections on Wales and Scotland. Its effect may be summed up in the recommendation "that concerted efforts should be made by employers, teachers, local education authorities, and the state to increase the flow of capable students to the universities and higher technical institutions with a view to securing the larger supply of trained scientific workers required for industrial and other purposes." It recommends that natural science should be included in the general course of education of all up to the age of about 16; that the tests of such a course recommended in the report should, with necessary modifications, be accepted as the normal qualification for entrance to the universities and professions; that a large increase in the number of scholarships at all stages of education is necessary, and that periodical inspection under the direction of the state should be compulsory on all schools. Finally, it states emphatically that real progress in education depends on a revolution in the public attitude towards the salaries of teachers and the importance of their training. Recognizing that no profession is more affected by the way natural science is taught in schools than medicine, since it is directly based on a knowledge of chemistry, physics, and biology, the committee devotes a special section to medical education and makes certain recommendations. It points out that there are two standards for admission to a medical school—the senior, which is equivalent at least to a university matriculation examination, and the junior, which is considerably lower and is taken by about 40 per cent. The committee considers that the senior examinations would be a satisfactory test for entrance into the medical profession if one or more natural science subjects were offered by the candidate and if the teaching of natural science were materially improved in secondary schools. It is of opinion that some substitute for the junior certificates must be found which will make it certain that the pupil has passed through an educational course in the natural sciences. At present the "junior certificates are taken by boys who either left school at about 16 for no very definite cause, or were too lazy or too

[1] Cd. 9011, price 9d.

ignorant to pass the higher examinations, or who perhaps on account of poverty do not aim at a university course in medicine." These certificates are granted on the result of an examination in four subjects—English, mathematics, Latin, and an additional language, classical or modern. No evidence of instruction in natural science is required, nor any certificate of attendance at any educational course, whether at a secondary school or elsewhere. It is obvious, the report continues, that such a method suffers from two grave defects: first, there is no guarantee that the candidate has received any instruction in natural science, the bedrock of his future vocation; secondly, there is no evidence to show that he has gone through a coherent educational course in any of the subjects demanded. He may merely have been crammed by some institution which exists for this purpose. As the door has been opened by the universities of London, Liverpool, Leeds, Sheffield, and Birmingham, the committee considers it too late to attempt to retain Latin as an obligatory subject in the examination for entrance to the medical profession, and advises that the first school examination should, subject to certain modifications, be recognized by the General Medical Council as qualifying for entrance into the medical profession. This examination would be held at the completion of the general course of study at a secondary school to test the results of instruction in English subjects, languages, mathematics, and science, in the manner suggested by the Board of Education, but the committee recommends that every boy should be required to satisfy the examiners both in science and mathematics. The committee considers that something more than a simple pass should be demanded at this examination from a medical student, and that a candidate who has obtained a simple pass should only be allowed to enter on the study of medicine by passing the second school examination, which the Board of Education has suggested would be suitable for pupils of about 18. The committee further recommends that medical students should be allowed to take the first professional examination in chemistry and physics and in biology before entering a university or medical school, and that more scholarships should be provided for candidates of both sexes, tenable throughout the medical course.

NATIONAL KITCHENS.

THE Food Controller, acting under the powers conferred upon him by the Defence of the Realm Regulations, has issued an Order—to be known as the National Kitchens Order, 1918—permitting local authorities to establish and maintain in their areas national kitchens and distributing dépôts, to sell food and drink for consumption on or off the premises, and to do such other things as are necessary for fulfilling this purpose, subject to conditions laid down by the Food Controller. The powers granted to it may be delegated by a local authority to its Food Committee, or other committee, and approved combinations of neighbouring local authorities will be encouraged by the Food Controller. Such kitchens and dépôts, and the food and drink supplied by them, must at all times be open to inspection by authorized persons. The Local Government Board, by arrangement with the Food Controller, has issued regulations conferring upon local authorities and their officers the powers and duties necessary to conform with the National Kitchens Order, with the proviso that no such authority shall delegate any power to levy a rate or borrow money, the expenses incurred in the execution of this Order being defrayed as if they had been incurred in the execution of the Public Health Acts. The Ministry of Food has also issued a memorandum on national kitchens for the information and guidance of local authorities and committees. This explains that the present position of the food supply has made an organized effort of the kind both necessary and desirable. The advantages of national kitchens are summarized thus: (*a*) Economy of food and fuel; (*b*) the supply of nutritious and well-cooked food at reasonable prices—that is, on a self-supporting, but not profit-making basis; (*c*) the substitution of skilfully prepared and properly cooked wholesome meals for makeshift meals; (*d*) economy of labour by the collective preparation of food. Experience of the kitchens already in use has satisfied the Food Controller that the benefits to be derived from the operation of suitable schemes only need to be known to be appreciated. He therefore wishes local authorities to regard the provision of national kitchens as a matter of national urgency and a form of insurance against food shortage. Every scheme must be approved by him before they are put into operation. Existing kitchens will require approval, and should be included in proposed schemes. The Treasury has sanctioned the payment to a local authority, in respect of an approved scheme, of an out-and-out grant of one quarter the cost of equipment; the advance of a second quarter of such cost on condition that the amount will be repaid out of the financial results of the kitchen rateable with the amount provided by the local authority; and a similar Treasury grant and advance in respect of approved schemes for village canteens. The balance of the cost will be borne by the local authority. Schemes should take into account the facilities available (including the equipment in premises now closed) for the supply of cooked food through the medium of restaurants, eating-houses, and other catering agencies, and co-operation with the proprietors of such establishments is recommended. The memorandum contains various practical suggestions with regard to the selection of premises, and an outline of procedure for organizing kitchens and dépôts. The point is insisted upon that a national kitchen is a business proposition, and must not be conducted as a charity. The Food Controller is willing to aid in the preparation of schemes, especially as regards the character of kitchens and their equipment, estimates of cost, menus, and other information relative to scientific and economic cookery, accountancy, methods of transport of cooked food, and the supply of supervisors and working staff. All communications on this subject should be addressed to the Director of National Kitchens, 4, St. Paul's Churchyard, London, E.C.4. The cordial support of the medical profession can be assured beforehand, since the communal kitchen has dietetic and economic advantages which are self-evident. We foresee great developments of the idea, not only during the present food crisis, but also in the lean years which must be expected after the war. It may perhaps form an essential feature in social reorganization.

THE EFFECT OF GLARE ON THE EYE.

IN a paper on the physiology of the retina, read before the Illuminating Engineering Society on April 16th, Professor W. M. Bayliss, F.R.S., discussed in the first place the structure of the retina and the photochemical reaction of the visual purple, and in particular the time course of the reaction as illustrated in records of electrical changes accompanying light action in the eyes of certain animals. He went on to express the opinion that excessive contrasts produced injurious effects upon the retina. It was difficult to say exactly what occurred in the retina when the unpleasant sensation resulting from excessive contrasts was experienced, but after very intense and prolonged exposure detectable damage to the cell structures could be made out. The presumption was that any glaring conditions which caused discomfort were prejudicial, and, although in mild cases the discomfort was only temporary, and the recuperative power of the eye might prevent appreciable injury, yet habitual subjection to moderate glare would probably hasten failing sight in later years. The difficulty of imposing definite limits to what could be accounted glare arose from the varying power of different eyes in respect of resistance and recuperation, and from the fact that the eye

at any moment was affected differently by a light of given brightness according to its state of adaptation. It had been suggested in America that the ratio of brightness of objects in the field of view should not exceed 100 : 1, and while it would be premature to say that a physiological basis for this suggestion was established, it seemed a reasonable figure to take. No unshaded bright sources, such as filaments or incandescent mantles, should be allowed to fall within the direct range of vision; if such bright sources were permissible anywhere, it was immediately overhead, in which case the eye was shielded by the brow and upper eyelid. The same difficulty, owing to the complexity of factors on the physiological side, was to be found in attempting to contrive a general test for eye fatigue such as could be applied to demonstrate the effect of different systems of illumination. This involved the question of bodily health and fatigue as well as eye-strain in particular. The difficulty of establishing this general fatigue test was also indicated by Mr. Treacher Collins in the subsequent discussion. He said that the limits of fatigue varied widely among different people, according to the prominence of the eyeball in the orbit (the deep-set eye, other things being equal, was less liable to fatigue); the size of the pupil, the length and colour of the eyelashes, and the pigment in the skin of the eyelids were further factors to be taken into account, and he had himself found that to smear a little charcoal over the eyelids when travelling in glaring sunlight was some protection. The question could not be considered without bringing in also the great differences between individuals in respect of nervous sensibility and imagination.

MILITARY DOCUMENTS, MAN POWER, AND PROMOTION.

WE felt it our duty a short time ago to call attention to the multiplicity of the forms to be filled up and the documents to be prepared by army medical officers, and the amount of clerical work of a routine kind they were called upon to undertake. We were disposed to attribute this to the persistence of old regulations, which were only applicable to the small army this country maintained in peace. We were assured that this was not the explanation, and that as a matter of fact the old regulations did not require so much clerical work from medical officers as many were doing in this country. It appeared, therefore, that the obligations had been placed upon them under a misapprehension, and we cannot doubt that they have ceased to labour under this disadvantage. That great complexity of clerical work can arise even in a new department is shown by the letter from Lord Rothermere, Secretary of State for the Royal Air Force, published in the newspapers on Monday. Speaking of that department, he said that there was much duplication, and that a great many excellent officers were engaged in filling up unnecessary forms and carrying out circumlocutory methods of conducting business. It is quite clear, therefore, that the multiplication of documents and forms to be written, filled up, or signed, is one of the dangers which has to be guarded against in the working of any public department. The abuse is very serious in France, and one of the Paris newspapers published a year or two ago a whole sheet, the size of a page of the *Times*, reproducing in facsimile all the notes, stamps, and signatures accumulated about a simple question. The first document, sent to the officer commanding a particular regiment, set out that the French War Office had decided that men who met certain conditions should be removed from their units and sent elsewhere, and the question was, how many men in his regiment fulfilled the conditions. The document started on its voyage through "the usual channels," and in the various offices and commands was duly annotated, signed, and stamped. Eventually it reached the officer commanding the regiment, who replied that there were no men in his regiment who fulfilled the conditions. Whereupon the document started on its return journey, and before it got back to the original inquirer had attained the dimensions we have mentioned. There is one other point in Lord Rothermere's letter which seems worthy of reproduction here. It deals with promotion. "I intend," he wrote, "that the door shall be thrown wide open for promotion of any and every officer whose merit, first from the disciplinary and then from the flying or technical point of view, entitles him to advancement. The Regular officer must always receive priority of consideration. He is the backbone of the three fighting Services, but after all his claims have been met there should be wide scope for the promotion of temporary and Special Reserve officers, for in the Air Force these officers comprise more than 90 per cent. of the entire staff. So far not one of them has risen to the rank of Brigadier-General on any of the battle fronts or in the training divisions at home."

A NEW SPIROCHAETE IN RAT-BITE FEVER.

RAT-BITE FEVER is fairly common in Bombay, but as the cases usually come under observation weeks or months after the initial phases have passed and when complications have supervened, Row[1] has not in ten years' search been able to demonstrate the virus of the disease until now. A schoolboy, aged 15, developed fever after an incubation period of ten days from a scratch by a rat, and nine days later a papular, slightly nodular eruption gradually spread over the face, neck, trunk, and limbs; it suggested a papular syphilide or even nodular leprosy. Blood from the median basilic vein showed a slight leucocytosis, but was sterile, free from spirochaetes, and gave a negative Wassermann reaction. Films from blood and serum squeezed out of the papules contained spirochaetes, 2 to 3 μ in length, with only two or sometimes three curls, and so quite different from the much longer spirochaete described in 1916 as the cause of rat-bite fever by Futaki, Takaki, Taniguchi, and Osumi in Japan, which was midway in length between *Spirochaeta pallida* and *S. duttoni*. Row's spirochaete was pathogenic to mice and rats. The patient was completely cured by the injection of neosalvarsan, the eruption rapidly disappearing on the third day after the injection. This case confirms the Japanese view that rat-bite fever is a spirochaetosis, but it raises the interesting question as to the possibility that different spirochaetes may cause the disease. Observers in America —Blake, Tileston, and Tunnicliffe—described a streptothrix in rat-bite fever which is said to be identical with Schottmüller's, but Row suggests that this was a secondary or possibly mixed infection.

ORTHOPAEDIC COMMITTEE: MINISTRY OF PENSIONS.

THE Minister of Pensions has appointed a consultative Orthopaedic Committee, to consult with and advise the Ministry on all matters relating to orthopaedics. The chairman is Sir Arthur Boscawen, Parliamentary Secretary to the Ministry of Pensions, and the members are Colonel Sir Robert Jones, C.B., Major Bristow, R.A.M.C., Major Elmslie, R.A.M.C., Sir John Collie, Director of Medical Service to the Ministry of Pensions, and Dr. Fletcher Porter, Deputy Director of Medical Service to the Ministry of Pensions. We are glad to know that this step has been taken, and can only regret that it was not taken earlier. We must regret also that the Minister has not given any intimation of his intention to establish an orthopaedic branch of the medical department which would command the permanent services of one or more experienced orthopaedic surgeons. The committee contains three officers eminent in this speciality, but we are not informed how often they are to meet. We fear that an occasional sitting, even of so strong a committee, will not meet the necessities of the situation, which we regard as very grave.

[1] R. Row, *Indian Journ. Med. Research*, Calcutta, 1917, v. 386-393.

The Council of the Royal Society has appointed a committee to investigate and report on the possibility of obtaining and replacing food materials and other necessaries by the utilization of natural products not hitherto generally employed for such purposes. Suggestions as to such products and the means of organizing their collection should be addressed to the Secretary of the Natural Products Committee, Royal Society, Burlington House, Piccadilly, London, W.1.

Medical Notes in Parliament.

Military Service Bill.

The Extended Age for Medical Men.

The provision in the Military Service Bill whereby the age for military service for duly qualified medical practitioners is to be raised to 56, as against 51 for ordinary service, came before the House of Commons in Committee on April 12th.

A debate arose on an amendment moved by Mr. Leif Jones for the purpose of obtaining information, and during its course Sir Watson Cheyne stated the position of the medical profession. He was quite sure that its members were not opposed to the proposal, and to him it seemed that an honour had been done to them. They particularly trusted the Minister of National Service because he belonged to the same profession. Nevertheless it was an extremely serious thing, both for the doctors themselves of this age and for the community at large, for them to be called up, and it would require a very great deal of care and tact to do it without injury. Referring to the sacrifices that the profession had made, Sir Watson Cheyne said he knew many young men who volunteered early in the war and were absolutely ruined as a result, financially and in health also. It was a great problem for these men how to reinstate themselves, and yet as long as they were young they did not lose hope, as they had time to begin again. That applied to young men of 20 to 30, but when a man was between 50 and 55 he could not recover his position. It was hoped that in selecting these men the Minister would have special regard to this point. The reason for calling on men of this age was, he presumed, that they were wanted to take the place of others who were fit to go abroad. He did not suppose for a moment there was any idea of putting men of 55 into the trenches. A man at that age had not the physical ability to go into the trenches, but he might have the brains and experience to help the country at home. Hence he suggested that to a certain extent they should be part-time men. Let them be put in charge near their own homes—for instance, in London, to work in a hospital—and let them give the greater part of their time there and yet be able to go home to keep things together. That was the sort of solution. It would be very hard if a man were taken from active practice and had nothing whatever to do abroad. That had happened over and over again. Men who were working night and day in London had been sent abroad and had half an hour's work in the whole day. That broke a man's heart. He wanted only to draw the attention of Sir Auckland Geddes to the point, that he as far as possible should try and conserve doctors' practices at the same time getting as much work out of them as possible.

Sir Auckland Geddes said that the Military Service Act of 1916 gave power to provide for the establishment of professional committees to deal with claims for exemption made by duly qualified medical practitioners. In other words, the dealing out, if he might use the expression, of the doctors for the armed forces of the Crown was, in fact, controlled by professional committees. They had now reached the stage at which the professional committees said: "There are only two possibilities in front of us: Either we are to take away the only doctor remaining in the locality and leave no one, or we have to arrange when we take that man to move some one else into his locality." There were districts in this country where, as the result of the withdrawal of medical men, the supply available was very short and where the young fit man was really necessary, just as necessary as he was in the trenches, and working practically as hard day and night. It was no good talking about putting an old man who did not know the district and did not know the people into that position. In the medical profession youth and fitness were now required for certain districts at home just as much as at the front. But there were great base hospitals where the work was not normally very hard, and it therefore appeared wise to see if use could not be made of some of the older men of the medical profession who were at present in this country. The number of medical men available had been ascertained in every district and the number of the population they might have to look after, and it was found that there were in some of the more comfortably off residential cities—not the great manufacturing cities but cities for the retired class—doctors of ages from 50 to 54 who were really in excess of local requirements. These had, comparatively speaking, a small number of possible patients at any time. The professional committees agreed that many of these men could go without dislocating either the public health service or the ordinary service of attendance on the sick, and were sufficiently physically fit for work in the base hospitals. The question for Parliament, therefore, was whether the medical demands for the forces of the Crown were to be met in the way that made least disturbance at home and without harm to the civil population, or was the age for doctors to be left at the same level as for other sections of the population, a kind of double-shuffle going on. There were always men coming back from overseas to their practices to release a partner or something of that sort. If medical men had to be moved from town A to town B so that the practitioners in town A might replace practitioners in town B who had gone into the service, an enormous number of problems would be raised as to the adjustment of practices and compensation for removal from positions. Were it true that the doctors were now equally spread over the country so that there was an equal possibility of medical attendance for persons in civil life there would be no need to raise the age. But that was not the case. Doctors were unfortunately thin in the great munition areas, and no more could be taken out of those areas. Appeals had been made to individual doctors to move into districts which required greater service, and with great public spirit a certain number had responded. But the medical profession was composed of human beings, and there were human beings who would do these things, and there were human beings who said, "No, I would rather not." The object of the clause, however, was to enable the situation to be dealt with in the interests of the civil population. The administration of the power proposed with regard to the medical profession was in no sense under the War Office until the medical man actually donned the uniform of the R.A.M.C. The provision would be worked by the Ministry of National Service, with the National Insurance Commissioners, the Local Government Board, and the professional committees as the executive machinery for calling up and distributing the men; he believed he was correct in saying that all these bodies agreed that the power which was being asked for should be granted.

In the course of the discussion Mr. Pringle said that before giving this power to the Government they ought to insist that the War Office should exercise rigid economy in the use it made of doctors in the army, and also that they should be used in the best way. Merely clerical work should not be thrown upon them. He was told that when the committee of investigation into the medical service in France was there the authorities reduced the number of doctors in the casualty clearing stations, and there was a most rigid economy wherever the committee went. Sir Watson Cheyne interpolated that nothing of that kind deceived the committee. Brigadier-General McCalmont supported Mr. Pringle's appeal for assurance that the medical officer was put to the work for which he was most suited. In regard to Ireland he thought they would be able to economize a great deal in medical officers if there was a certain amount of give-and-take between the civilian element and the military authorities. If the military authorities were going to say, "We must have a military medical officer in such and such a town," and if the Ministry of National Service had no power to say, "No; it is quite enough for you to use the local civilian doctor," much service would be lost. He mentioned Ireland because there were many small garrisons which required medical attention, and probably the problem was more acute there than elsewhere. Sir Thomas Esmonde agreed with Sir Watson Cheyne as to the course to be adopted. Every one who knew anything of the work of the R.A.M.C. was aware of the enormous amount of time wasted in filling up forms. He asked Sir Auckland Geddes to consult the medical authorities as to whether it was not possible to take medical students of three years' standing for first-aid work at the front and thus relieve doctors for more important work. Major David Davies, referring to the work of the committee of inquiry in France, said he had asked that this committee should include a lay element, and that the

inquiry should be extended. He thought the House should have had the report of the committee before it. At the time this committee was appointed it was understood—although he knew that that had been denied—that under the terms of reference it would investigate arrangements in this country as well as in France. The medical service in the East ought also to have been included. Sir Henry Craik, as the representative of some 5,000 doctors, supported the view that some further form of compulsion was desirable. He had received communications from some of his constituents complaining that certain men in advantageous positions were stealing away the practices of others. It was a very serious question, and he thought it was on that ground very largely that the profession as a whole were in favour of some sort of regulation and organization such as was proposed in the bill. While the profession welcomed the proposal, it felt that it placed a great responsibility upon the authorities. He therefore joined in the appeal that there should be greater exercise of economy of resources on the part of the medical department of the War Office.

Sir Auckland Geddes, in a further reply, said that there had been consultation with the medical profession and with the authorities representing the central governing bodies, and there had been a very strong expression of opinion from certain members of the profession that the age should be raised to 60. In answer to Mr. Timothy Healy, Sir Auckland said that safeguards for the medical profession in Ireland would be worked along lines similar to those which were followed in England, where there were committees of representatives of the Royal Colleges, of the British Medical Association, etc., actually working as professional tribunals. He added that the whole object of the present organization was as far as possible to give part-time work to the medical profession.

The Committee divided on the clause, which was carried by 249 votes to 95.

During the further proceedings in Committee Sir George Cave agreed to modify the proposal under which there should be power by proclamation on national emergency to cancel certificates of exemption *en bloc*. It was explained that the National Service Ministry already had power to cancel exemptions granted on grounds of occupation. The Home Secretary agreed to omit from the scope of possible proclamation men who were given exemptions on the ground of ill health, and also to omit conscientious objectors. The number of cases, he said, in which the tribunals had acted on their own judgement against the views of the medical boards were few; many of the conscientious objectors were of weak physique and deficient in other ways. They were a class of little military value. Thus the power to be given for cancelling exemptions by proclamation would be limited to the cases of serious hardship on business or domestic ground. What was in mind was only a period of crisis in which all personal considerations ought to give way. He accepted an amendment that Orders in Council should be laid on the table for fourteen days, within which period it would be open for an address to be presented for annulling the Order.

Mr. Hayes Fisher explained that it was intended that the Local Government Board should nominate the local tribunals and also frame regulations regarding them. The appeal tribunals would be retained in much the same form as now, but their personnel might be altered. Sir George Cave subsequently undertook that there should be equal rights of appeal both for the men and the National Service Department. The proposed inclusion of ministers of religion was omitted; those who desired to serve could still do so if they had permission from their superiors.

During the discussions Sir Auckland Geddes replied to a number of questions as to his statement last week to the effect that it was estimated that the number of men it was expected to call up and post for service in the army or air force during this year was 7 per cent.; the remaining 93 per cent. would remain in civil life under conditions precisely similar to those under which men from 35 to 43 were in civil life now; there was no intention of compelling those men who remained in civil life industrially. It was not competent for a tribunal to grant certificates of exemption conditionally upon a man remaining employed by any specified firm or individual; the exemption must always be upon the ground that the man was engaged in a certain occupation. He added: "I want to say generally that there is not the slightest intention to make use of these powers in this Act to compel men to do things in civil life." There was no intent on to devise a scheme of industrial compulsion with regard to the 93 per cent., nor to depart from the general lines of procedure followed throughout the last two years. It was intended to take every young man who could be taken before drawing upon older men; but while these older men were of comparatively small value for front line trench work, they were of enormous use in connexion with the ground work of the Royal Flying Corps, in the Royal Army Medical Corps, the Ordnance Corps, and the Garrison Artillery.

On the third reading, Mr. Barnes, the Labour Minister, and Mr. Lloyd George definitely announced that the Government would introduce a Home Rule Bill which would include Ulster within the authority of an Irish Parliament, and pledged itself to pass this measure subject to the approval of the House. If the measure were rejected by the Lords the Government would resign. It was hoped that the Home Rule Bill would be on the statute book before the conscription provisions operated in Ireland, but the Government was bound to proceed with this provision for Ireland, as well as the rest of the country, without waiting for the Irish Parliament to be set up, for that operation would take time, and men were wanted.

The Sexual Offences Bill.

Lord Beauchamp has introduced into the House of Lords a bill intituled "An Act to make further provision with respect to the punishment of sexual offences and for the treatment of venereal diseases and the prevention of indecent advertisements; and matters connected therewith."

Clause 1 makes it an offence, punishable by imprisonment up to two years with or without hard labour, for any person suffering from venereal disease in a communicable form to have, to solicit, or to invite intercourse with, or wilfully to communicate such disease to another person, provided that no one shall be convicted who proves reasonable grounds for believing that he or she was free from communicable venereal disease at the time of the alleged offence. To ascertain whether a person, convicted of any offence, which under this clause would be caused or aggravated by the existence of communicable venereal disease, is in fact so suffering, the court may order the offender to submit to medical examination and tests, these being conducted in the case of a female, if she so desires, by a medical woman. False accusations are made punishable by heavy fine or imprisonment or both. Clause 2 forbids common prostitutes and night-walkers to loiter in thoroughfares or public places for the purpose of prostitution or solicitation, on pain of a month's imprisonment. Clause 3 stiffens the penalties against brothel keepers and the like. Clause 4 imposes a fine not exceeding £20 upon the occupier of premises used for public entertainment convicted of allowing these to be the habitual resort, for whatever purpose, of reputed prostitutes. Clause 5 prohibits in the most comprehensive terms the treatment of venereal disease otherwise than by duly qualified medical practitioners, and forbids the advertisement of any such treatment whatever, except by local or public authorities with the sanction of the Local Government Board, or in publications sent only to medical practitioners, or to wholesale and retail chemists for the purpose of their business. The penalty for contravention of this clause ranges from a fine not exceeding £100 to two years' hard labour, and the Venereal Diseases Act, 1917, is explicitly repealed. Clause 6 forbids the display or transmission of "any picture or printed or written matter which is of an indecent or obscene nature," including any advertisement which relates to venereal disease, nervous debility, or other complaint or infirmity arising from or relating to sexual intercourse, or which suggests, directly or indirectly, either the taking of anything for the purpose of procuring miscarriage or abortion, or the use of any premises for immoral purposes. Clause 7 seeks to punish acts of indecency with persons under the age of 17, consent being no defence, and Clause 8 would amend the Criminal Law Amendment Act, 1885, in the same way. Clause 9 gives power to exclude the public from courts, and to prohibit reports of proceedings where this seems desirable in the interests of decency, morality, humanity, or justice. Venereal disease is defined as meaning syphilis, gonorrhœa, or soft chancre; and the short title is "Sexual Offences Act, 1918."

Appeals on Medical Grounds.—Replying to a question in the House of Commons on April 18th Mr. Hayes Fisher (President of the Local Government Board) said that, so far as he was responsible for issuing the regulations, he did not contemplate taking away any rights of appeal on medical grounds to the appeal tribunals. Attested men, alike with unattested men, were examined as to their medical fitness for military service by National Service Medical Boards. Attested men had the same rights as unattested men under the rules (which had been issued by the Local Government Board) of applying to the appeal tribunals for leave to be examined by the medical assessors if they were dissatisfied with the grading by the National Service Medical Boards.

Extra Meat Allowance for Invalids.—In reply to Sir Clement Kinloch-Cooke, Mr. Clynes said there was no evidence that any undue suffering or hardship was caused to invalids under the present food regulations. If advantage was taken of the possibilities that were open in the use of fish, eggs, milk, meat extracts, and other unrationed food, no invalid need suffer in any way from the scarcity of butcher's meat. The Food Controller was acting throughout in consultation with scientific and medical authorities and was now considering whether some modifications should be made in the regulations. In reply to Sir Henry Craik, he said that the department was in consultation with those concerned to see whether some extra rations should be allowed on medical advice to patients suffering from loss of blood after surgical operations.

A CORRECTION.—In the debate last week on the Military Service Bill Sir Donald Maclean said that the Minister of National Service would agree that it had been the experience of the last two years that the sickness casualties of men between the ages of 35 and 41 had been two and a half times greater than those of men who were between the ages of 27 and 35. By a slip of the pen our note last week repeated the first-named figures.

THE WAR.

THE EAST AFRICAN CAMPAIGN.

A DISPATCH from Lieut.-General Sir J. L. van Deventer, Commanding-in-Chief British Forces in East Africa, dated January 21st, 1918, and covering the period from May 30th to December 1st, 1917, has been issued by the War Office. The health of the troops after the wettest season known in German East Africa for very many years was far from good. None but the indigenous African could stand the climate of the coastal belt in the rains, and the conditions on the banks of the Rufiji were little better. Europeans, Indians, and Africans recruited from any but low-lying areas accordingly suffered terribly from malaria, and the "paper strengths" of the force bore no proportion whatever to the numbers of men available in the field.

After describing the progress of the campaign towards its successful conclusion in the conquest of the last German colony, the Commander-in-Chief pays a warm tribute to the medical services. These, he says, had many, and at times almost insuperable, difficulties to contend with. Probably in no previous campaign in the tropics had such numbers been employed, and the peculiar conditions rendered the evacuation of the large number of sick and wounded a most difficult problem. Ambulance transport over the roughest roads involved much discomfort to the patients, but evacuation was well and expeditiously carried out from the front to the railway and sea bases, and every effort was made to minimize suffering. The mobility of the force was never impaired by the retention of the sick at the front. Apart from the large number of wounded, the sick-rate from malaria and dysentery was excessive, needing large hospital provision.

The sanitary services also had a most difficult task in controlling the spread of severe infectious diseases—for example, cerebro-spinal meningitis and small-pox, which are prevalent in many parts of the country. The great number of carriers employed necessitated the formation of an elaborate medical organization, including large hospital establishments, to deal with them. It is recorded that these arrangements were most carefully considered and well carried out. Equally with the fighting troops the personnel of the medical services suffered from the extremely trying climate.

The Commander-in-Chief adds that he cannot speak too highly of the enthusiasm and good work done by officers and men of the various medical services under the command of Surgeon-General G. D. Hunter, C.B., who made every effort for the treatment, care, and comfort of the sick and wounded, at times under the most exceptional and trying conditions. The highest praise also is given to the ladies of the nursing services for their devotion to duty.

THE ITALIAN FRONT.

GENERAL SIR HERBERT PLUMER, lately commanding the British Forces in Italy, in a dispatch dated March 9th, summarizes the services rendered by the various branches of the force since he assumed command on November 10th, 1917. He states that the medical and sanitary services were well organized. The various hospitals and convalescent camps had been well arranged, and were in thoroughly good working order; while the policy of establishing general and stationary hospitals on the Riviera worked well, the effect of the hospitals being in such a good climate naturally tending to early recovery. The health of the troops was excellent and casualties were slight. Although the men felt the cold considerably during the winter, the Commander-in-Chief is convinced that they benefited much from the change after the severe fighting they had had in France.

INDIAN FRONTIER OPERATIONS.

IN a dispatch on the operations against the Mahsuds, March to August, 1917, Lieut.-General Sir A. A. Barrett states that the medical services under Colonel P. Hehir, by the timely use of precautionary measures, were able to prevent the outbreak of epidemics, while the arrangements for reception and evacuation were fully adequate to deal with casualties. The provision and equipment of base hospitals and convalescent dépôts at Rawalpindi and in the Murree Hills were quickly carried out, and amply sufficed to meet all requirements.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Drowned.

SURGEON A. F. MACINTOSH, R.N.

Surgeon Alexander Fraser Macintosh, R.N., was reported as accidentally drowned, in the casualty list published on April 11th. He was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1915, and soon after took a temporary commission as surgeon in the navy.

ARMY.

Killed in Action.

MAJOR J. S. WALLACE, M.C., R.A.M.C.

Major Joseph Stephen Wallace, M.C., R.A.M.C., reported killed in the casualty list published on April 10th, received his medical education at University College Hospital, and took the diplomas of M.R.C.S., L.R.C.P.Lond. in 1915. After serving as house-surgeon to the Great Northern Central Hospital he received a temporary commission in the R.A.M.C. In the early part of 1917 he was awarded the Military Cross for conspicuous gallantry and devotion to duty when in charge of bearer parties.

CAPTAIN S. CROSS, R.A.M.C.

Captain Solomon Cross was killed in action on March 22nd. He had been previously reported missing, but a brother officer stated in a letter that after Captain Cross had attended to wounded throughout the whole of March 22nd in an exposed trench and under intense shell fire, our troops were obliged to withdraw. It was during the withdrawal and while bending over a wounded soldier that he was killed. Previous to this engagement he had been attached to a casualty clearing station. He was the youngest son of Mr. W. Cross of Darlington, and was educated at the Royal Kepier Grammar School, Houghton-le-Spring, where he gained the Heath Scholarship. Captain Cross graduated M.B., B.S.Durh., with honours, in 1899. For a few years he was in practice in Houghton-le-Spring, and latterly in Newcastle, where he specialized in diseases of the nose and throat, having previously held house-surgeoncies in the special departments of Brighton and of the Sussex County Hospitals. He was on the staff of Newcastle-upon-Tyne Hospital for diseases of the throat, nose and ears, also on the Women's Hospital. When in Boulogne in March, 1917, having joined up in 1915, he volunteered to go to the trenches, and for a period was M.O. to a battalion of the Northumberland Fusiliers. He will be much missed by friends and patients.

CAPTAIN D. W. HUNTER, D.S.O., R.A.M.C.

Captain Douglas William Hunter, D.S.O., R.A.M.C., was killed in action on March 25th. He was the eldest son of Mr. Douglas Hunter, of Jordanhill, Glasgow, and was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1901, subsequently taking the D.P.H.Camb. in 1907. He was in practice at Bradford before the war. He took a temporary commission as lieutenant in the R.A.M.C., was promoted to captain on completion of a year's service, received the D.S.O. on September 26th, 1916, for an act of great bravery and determination, and was attached to the West Yorkshire Regiment when killed. Much of his valuable work in the trenches was done in encouraging and keeping together his men.

Died of Wounds.

CAPTAIN C. E. A. WILSON, R.A.M.C.

Captain Charles Edgar Andrew Wilson, R.A.M.C., died of wounds on April 8th, aged 41. He was the eldest son of the late Rev. A. Wilson, Rector of Bedford Park, Chiswick, and was educated at Charterhouse, at St. Thomas's Hospital, and at Christchurch, Oxford, where he graduated B.A. with first-class honours in physiology in 1899, and M.B. and B.Ch. in 1902. After filling the posts of house-surgeon to the Hospital for Sick Children, Great Ormond Street, of house-surgeon to the General Hospital, Birmingham, and of honorary surgeon to the Blackheath and Charlton Cottage Hospital, he went into practice at Petworth, Sussex, where he was honorary surgeon to the Petworth Cottage Hospital. He took a temporary commission as lieutenant in the R.A.M.C. in 1916, and had

been at the front almost ever since—at first with the Northumberland Fusiliers, and then with the Rifle Brigade, being promoted to captain after a year's service.

Died on Service.

CAPTAIN W. TURNER, R.A.M.C.

Captain William Turner, R.A.M.C., died recently of pneumonia on active service. He was educated at St. Mungo's College, Glasgow, and took the Scottish triple qualification in 1900, after which he went into practice at Saltcoats, Ardrossan, where he was medical officer of Old Ardrossan parish. He took a temporary commission as lieutenant in the R.A.M.C. about two years ago, was promoted to captain after a year's service, and had served on both Eastern and Western fronts.

Wounded and Missing.

Captain T. A. Townsend, R.A.M.C. (temporary).

Wounded.

Major G. E. Ferguson, R.A.M.C.
Major B. F. Bartlett, R.A.M.C. (temporary).
Captain C. D. S. Agassiz, M.C., R.A.M.C.(T.F.).
Captain R. C. B. Briscoe, R.A.M.C. (temporary).
Captain L. A. Celestin, R.A.M.C. (temporary).
Captain T. A. Davie, M.C., R.A.M.C.(S.R.).
Captain S. W. Fisk, R.A.M.C. (temporary).
Captain P. Forbes, R.A.M.C. (temporary).
Captain A. W. Forrest, R.A.M.C. (temporary).
Captain A. W. Gill, R.A.M.C. (temporary).
Captain C. M. Gozney, M.C., R.A.M.C.(T.F.).
Captain N. B. Graham, M.C., R.A.M.C.(S.R.).
Captain J. W. Hagey, Canadian A.M.C.
Captain A. C. Hancock, M.C., R.A.M.C. (temporary).
Captain W. A. Hislop, R.A.M.C. (temporary).
Captain G. W. B. James, R.A.M.C. (temporary).
Captain C. H. S. Redmond, R.A.M.C. (T.F.).
Captain W. J. Seale, M.C., R.A.M.C. (temporary).
Captain F. N. Stewart M.C., R.A.M.C. (temporary).
Lieutenant D. T. Harris, R.A.M.C. (temporary).
Lieutenant E. A. Sanders, R.A.M.C. (temporary).
Lieutenant A. H. Southam, R.A.M.C.

Missing.

Major J. Kennedy, R.A.M.C.(S.R.).
Captain F. Dallimore, M.C., R.A.M.C. (temporary).
Captain F. T. H. Davies, R.A.M.C. (temporary).
Captain J. A. Gilfillan, R.A.M.C. (temporary).
Captain P. H. Green, R.A.M.C. (temporary).
Captain A. C. Hepburn, R.A.M.C. (temporary).
Captain W. J. Hirst, R.A.M.C.(T.F.).
Captain H. S. Moore, R.A.M.C. (temporary).
Captain J. C. Muir, R.A.M.C. (temporary).
Captain C. E. Redman, R.A.M.C. (temporary).
Captain S. Smith, M.C., R.A.M.C. (temporary).
Captain R. M. Soames, R.A.M.C. (temporary).
Captain E. A. Walker, M.C., R.A.M.C. (temporary).
Lieutenant F. N. P. Martland, R.A.M.C. (temporary).

Prisoner of War.

Captain E. H. Griffin, R.A.M.C. (temporary), whose name was given as killed in action in the obituary columns of the *Times* of April 9th, and of whom an obituary notice appeared in last week's BRITISH MEDICAL JOURNAL, is now believed to be wounded and a prisoner.

DEATHS OF SONS OF MEDICAL MEN.

Beverley, Michael, Australian Infantry, eldest son of Dr. Michael Beverley of Scole, Norfolk (formerly of Norwich), killed March 26th. He had gained the Military Medal.

Church, John William, Lieutenant Hertfordshire Regiment, eldest son of Sir William Church, Bt., K.C.B., killed on March 30th. He was educated at Harrow and University College, Oxford, and graduated with honours. He was called to the Bar in 1903 and served three years under the Colonial Office as District Commissioner on the Gold Coast. He enlisted in the Public Schools Battalion, Middlesex Regiment, in August, 1914, and received his commission in the Herts Regiment on March 1st, 1915. He served as assistant adjutant and acting captain in 1916–17, and joined his regiment at the front in August, 1917. He is survived by his widow and three daughters.

Craigmile, Alexander Murray, M.C., Captain Rifle Brigade, eldest son of Dr. Craigmile of Wallasey, killed March 29th, aged 23. He was educated at Sedbergh, where he was in the fifteen and the eleven, and at King's College, Cambridge; got his commission on November 28th, 1914; was wounded in May, 1915; returned to the front in November, 1915, and got the Military Cross in October, 1917.

Cummins, Fenton King, Captain Connaught Rangers, youngest son of Professor Ashley Cummins of Cork, killed March 21st, aged 20. He was educated at Cheltenham College, was gazetted from Sandhurst in August, 1915, had been mentioned in dispatches, and got his company in March, 1918. His brother, Lieutenant Harry Jackson Cummins, 5th Gurkhas, was killed in Gallipoli in August, 1915, and four other brothers are now serving.

Featherstone, William Davies, M.C., Lieutenant R.F.A., younger son of Dr. W. B. Featherstone of Erdington, Birmingham, killed March 23rd, aged 22.

Gemmell, Stuart Stirling, Second Lieutenant Cameron Highlanders, youngest son of Dr. John E. Gemmell of Liverpool, killed March 21st, aged 19. He was educated at Uppingham, got his commission through the Cambridge Cadet Corps in August, 1917, and went to the front in September.

Gordon, Cecil Philip George, Captain South Staffordshire Regiment, only son of Colonel P. C. H. Gordon, R.A.M.C., accidentally killed while flying in Gloucestershire, March 21st, aged 24. He got his first commission on October 10th, 1914.

Gough, John Noel, Lieutenant R.F.A., son of Dr. Gough, medical officer of health of Northwich, Cheshire, killed recently. He was educated at King's School, Canterbury, whence he got a leaving exhibition to Trinity College, Cambridge, but took a commission in February, 1917. His brother, Lieutenant George Gough, was killed a few months ago in Palestine.

Gray, Edward J., Second Lieutenant Rifle Brigade, youngest son of Dr. Alan Gray of Cambridge, killed March 31st. He was born in 1898, educated at Winchester, where he was senior commoner prefect, and gained an exhibition at Trinity College, Cambridge, in December, 1915, but did not go into residence. He got a commission in January, 1917, and went to the front last June.

Hamer, John, Second Lieutenant K.S.L.I., killed on March 22nd, elder son of Dr. W. H. Hamer, M.O.H. for the County of London. He was born in 1897, and educated at University College School, Hampstead, where he held an entrance scholarship, and on the results of the London Matriculation was awarded the Horton Smith scholarship. He was in the first fifteen at the school 1914–16, and captain of the school in 1916–17, and gained an open scholarship in science at Christ's College, Cambridge.

Holmes, T. G., Second Lieutenant R.F.A., younger son of Dr. Holmes of Cheltenham, killed March 27th, aged 19. He was educated at Cheltenham College and Woolwich, and went to the front only seven weeks ago.

Hoops, H. A. M., Second Lieutenant Royal Irish Fusiliers, attached Royal Irish Rifles, son of Dr. H. L. Hoops of Cardiff, reported to have been killed, aged 21. Prior to joining the Officers' Training Corps he was serving his articles with an accountant at Cardiff. His brother is serving with the Royal Welsh Fusiliers.

Kenny, Hilary, Lieutenant Royal Naval Division, only son of the late Mr. A. S. Kenny, F.R.C.S., killed March 25th. He enlisted in the R.N.D., served in Gallipoli, and got his commission in the autumn of 1917.

Mackay, Ian, Captain Cameron Highlanders, eldest son of Dr. William Mackay of Craigmonie, Inverness, killed March 28th. He became lieutenant in the 4th Territorial battalion of his regiment on March 31st, 1913.

Newington, Percy W., Lieutenant East Kent Regiment, the Buffs, son of Dr. Newington of Edenbridge, killed March 21st, aged 20. He was educated at Epsom, passed into Sandhurst in July, 1915, got his commission in April, 1916, and went to France in July of the same year. He served through the battle of the Somme in 1916, and was promoted to lieutenant last October.

Spurway, Douglas, Captain Yorkshire Regiment, son of Dr. John Spurway of Brondesbury, killed in action on March 22nd, in his twenty-third year. He was educated at Bridgnorth Grammar School and St. Bartholomew's Hospital, and entered with a scholarship in October, 1914. In the following July, having passed his first professional examination, he joined the University of London O.T.C., and in two weeks obtained a commission in the 4th Battalion Yorkshire Regiment. He took part in the battles on the Somme, at Arras, and at Passchendaele Ridge, and was mentioned in dispatches in connexion with the latter. He was a great favourite at his school and with his fellow officers.

Watson, O. C. Spencer, Lieut.-Colonel King's Own Yorkshire Light Infantry, youngest son of the late Mr. W. Spencer Watson, killed March 28th. He was educated at St. Paul's School, and got his commission in the K.O.Y.L.I. in 1897. He served in the Tirah campaign of 1897–98, when he was dangerously wounded (medal and two clasps), and in China in 1900 (medal). He was invalided in 1904. He joined the 1st County of London Yeomanry in 1910, and served with them in Egypt and Gallipoli. He was promoted to major, and rejoined the K.O.Y.L.I., and went with them to France early in 1917, was dangerously wounded at Bullecourt in May, 1917, and received the D.S.O. He returned to the front last January, and was shortly afterwards promoted to lieutenant-colonel.

Wegg, Hugh Neville, Captain Middlesex Regiment, younger son of the late Dr. William Wegg, killed March 25th, aged 36. He got his commission in 1914, and became lieutenant on February 13th, 1915.

Whitehouse, John Luther Glendinning, Lieutenant R.E., only son of the late Dr. John Whitehouse, of the Scottish Church Mission in Rajputana, killed March 23rd, aged 20.

Wright, John Reginald Norrish, Cadet R.N., son of Dr. Wright, of Romford, Essex, died at the Royal Naval College, Osborne, April 5th.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

THE following is a continuation from p. 440 of our last issue of the particulars of acts of conspicuous gallantry and devotion to duty for which the decorations announced in the BRITISH MEDICAL JOURNAL, December 1st, 1917, p. 738, were conferred:

Military Cross.

Captain William Norman Abbott, N.Z.A.M.C.
He was untiring in his efforts in attending to the wounded under heavy fire during an attack. He worked without rest for seventy-two hours, and set a magnificent example to all.

Captain Douglas Lewis Barlow, A.A.M.C.
During an attack he advanced with the battalion, established his aid post, and dressed the wounded and assisted in their removal under constant shelling. Owing to casualties among bearers he was cut off from the ambulance clearing post for several hours, and it was mainly owing to his exertions that the wounded received attention and shelter during this period.

Captain Charles Henry Brennan, R.A.M.C.(S.R.).
He led his bearers fearlessly through heavy shell fire, and made a most valuable reconnaissance beyond the regimental aid post to find out if there were any wounded lying out. Though blown up and gassed, he remained at duty, setting a magnificent example to all.

Captain John Harold Balfour Brown, A.A.M.C.
When in charge of the forward line of evacuation for eight hours after his commanding officer was wounded, his reconnoitring of ambulance posts and regimental aid posts through the area of shell fire was of great assistance in controlling the evacuation. He supervised the loading of wounded into horse ambulances and organized the line of bearers and prisoners, and it was due to his action that great congestion was prevented.

Temporary Lieutenant (temporary Captain) Raymond John Clausen, R.A.M.C.
He worked continuously for forty-eight hours directing the stretcher-bearers and attending to the wounded under continuous shell fire. His cool courage and indomitable energy inspired his men and helped to save many lives.

Captain George Crawshaw, R.A.M.C.
His aid post was twice blown up, but he continued at his work in the open, attending to the wounded under heavy fire with utter disregard of his own safety. He set a magnificent example of courage and devotion to duty.

Temporary Captain Douglas Erith Derry, R.A.M.C.
While he was posting stretcher-bearers the locality was very heavily shelled, and many men were wounded, but he succeeded in dressing and removing them all under heavy fire. Later, in a small dressing station, when the shelters were hit and damaged by shell fire, he showed a splendid example to all by his coolness and resource.

Temporary Captain Thomas Duncan, R.A.M.C.
Though he was wounded on the way up to the line before an attack, he refused to go back, and carried out his duties under most difficult conditions, though suffering considerable pain, throughout the operation. He was again wounded, but continued at work until ordered to have his wounds attended to.

Captain Fred. Ellis, R.A.M.C.
He was in charge of stretcher-bearers during an action, and owing to his fearless and capable handling of his men the evacuation of the wounded was carried out with great success and rapidity. He remained in the open for long periods superintending the work. His disregard of danger and devotion to duty were of the highest order.

Temporary Captain Andrew Gaston, R.A.M.C.
During an attack he was untiring in his efforts to attend to the wounded under heavy shell fire, and personally brought in many wounded men, often dressing their wounds first in the open. His courage inspired all the wounded with confidence, and proved the finest example to his stretcher-bearers.

Captain Stuart Galloway Gibson, A.A.M.C.
While he was in charge of a detachment at a loading post the enemy opened a heavy bombardment. Though nearly all the shelters were demolished, he continued at his work of removing casualties throughout intense shelling. He set a splendid example of courage and devotion to duty.

Captain William Evans Graham, R.A.M.C.
By his utter disregard of danger when in charge of stretcher-bearers he set a splendid example to his men, and carried out the evacuation of the wounded under heavy and continuous shell fire until he was severely wounded.

Temporary Captain John Lewis Anderton Grout, R.A.M.C.
He conducted a number of stretcher squads through very heavy shell fire to the aid posts after they had previously failed to get through. Two bearers were killed and three wounded, but by his gallant action over forty stretcher cases were got to safety. Later, he personally conducted squads to these aid posts under similar circumstances.

Temporary Lieutenant Henry John Henderson, R.A.M.C.
He established his aid post within 300 yards of the enemy's position, and dressed and evacuated cases in the open. It was due to his splendid example, cheerfulness and courage, that a great number of lives were saved.

Captain Charles Edward Kynaston Herapath, R.A.M.C.
During two attacks he was in charge of the evacuation of the wounded from the regimental aid posts. On both occasions he moved about from post to post under very heavy shell fire, encouraging the stretcher-bearers and organizing the evacuation. It was largely owing to his conduct and example that 1,000 cases were got away successfully.

Captain Frederick William Kemp, N.Z.A.M.C.
He was untiring in his efforts in attending to the wounded, under heavy fire, during an attack. He worked without rest for seventy-two hours, and set a magnificent example to all.

Captain David Mackie, R.A.M.C.(S.R.).
When in charge of a line of evacuation, for four days he worked continuously in the open, going through heavy barrages.

Temporary Captain John Charsley Mackwood, R.A.M.C.
He attended to the wounded of eleven units in the open under heavy shell fire, working single-handed for several days. His self-sacrificing devotion to duty and his thoughtfulness and care of the wounded were beyond all praise.

Temporary Captain William Strelley Martin, R.A.M.C.
He led his bearers during seven days' operations through the most intense shelling with infinite resource and regardless of personal safety. It was due to his masterly organization and example that the wounded were collected so promptly.

Temporary Captain John Louis Menzies, R.A.M.C.
He worked continuously for thirty-six hours dressing and collecting wounded in the open under shell fire. When forced to take refuge, his shelter was blown in and he himself badly shaken and only saved by his steel helmet. He remained at his post, however, until relieved in the ordinary course.

Temporary Captain James Bertram Mitton, R.A.M.C.
When in charge of stretcher-bearers, by his courage and example he was able to get many wounded men away. The district was almost continuously under heavy shell fire and the roads were in a very bad condition, but he overcame all difficulties in a most praiseworthy manner and set a splendid example of courage and self-sacrifice.

Temporary Captain John Henry Morris-Jones, R.A.M.C.
He carried on his duties at his aid post during an enemy attack under very heavy fire. He also visited wounded men who were lying out in the heaviest of the fire, and went up to the front line to attend to the wounded. He showed total disregard of his own safety, and encouraged all by his cheerful and courageous demeanour.

Temporary Captain Joseph Herbert Porter, R.A.M.C.
He was in charge of the divisional collecting post during an action, and by his example and thoroughness did much to encourage all ranks in the discharge of their duties. He went forward in charge of bearers, and by his untiring energy succeeded in getting his communications re-established in the face of great difficulties.

Temporary Captain Norman Pallister Pritchard, R.A.M.C.
When in charge of his aid post during operations, it was entirely owing to his untiring care of the wounded and exertion in marshalling stretcher-bearers that all were eventually evacuated and lives saved thereby. Most of his work was done in the open under observed machine-gun fire.

Captain James Purdie, R.A.M.C.(S.R.).
When he was informed that there were a number of wounded in the front line during an action, he at once went forward with his stretcher-bearers, under heavy fire, and remained in the front line dressing and collecting the wounded until all were cleared. He set a fine example of courage and devotion to duty.

Captain James Rafter, R.A.M.C.(S.R.).
By his splendidly sustained effort in dressing wounded and organizing stretcher-bearers in the open under heavy shell fire during four days' operations without relief he undoubtedly saved many lives and much suffering.

Captain Stanley Arthur Railton, A.A.M.C.
During a very heavy barrage and an enemy counter attack he attended to the wounded in the open, with complete disregard for his own safety. His courage and coolness in carrying on his work under such conditions resulted in the saving of many lives.

Temporary Captain Alan Randle, R.A.M.C.
He went forward during an action and personally cleared the battle-field of wounded, evacuating 120 cases in two hours under heavy shell fire. He showed great courage when casualties were caused by a bombardment during a relief.

Captain Edmund Lewis Reid, S.A.M.C.
He accompanied the battalion in the attack and attended to the wounded with magnificent fearlessness under heavy fire in the open. He visited and attended to cases in the front line, and it was largely due to his efforts that the wounded were quickly dressed and cleared. His courageous conduct saved many lives.

Captain Hugh Arthur Sandiford, M.B., R.A.M.C.
He took up a position immediately behind the front line during an attack and dressed the wounded in the open. He displayed great coolness and gallantry under heavy artillery fire, working in an exposed position for forty-eight hours.

Temporary Captain William Logan Scott, R.A.M.C.
He worked untiringly, attending to the wounded in the open under heavy fire during an engagement, and showed splendid courage and resource.

Captain Frederic Battinson Smith, R.A.M.C.
He worked in a shell hole, attending to the wounded, throughout a very heavy bombardment. At night he frequently went out into No Man's Land with parties to bring in the wounded. He showed splendid courage and fearlessness.

Captain Edwin Cyril Widmerpoole Starling, R.A.M.C.(S.R.).
He remained day and night at his post under continuous shell fire, and was untiring in his work on behalf of the wounded, to whom his unremitting care and unruffled calmness was the greatest comfort and assistance. He set a splendid example of courage and self-sacrifice.

Temporary Captain John Glyndor Treharne Thomas, R.A.M.C.
He established a forward dressing station in an advanced position during an action, and, though heavily shelled throughout the whole day, stuck to his post in a most courageous manner, and undoubtedly saved the lives of many men. He organized search parties, and himself carried in a number of badly wounded men under rifle and machine-gun fire.

Temporary Captain John Aylmer Tippet, R.A.M.C.
When his dressing station was blown in and nearly all the occupants killed, although much shaken, he immediately organized a new station, and for eight hours dressed and tended the wounded without rest. Later, when the battalion moved forward, he went through a heavy barrage to the new dressing station and worked continuously for six hours. During five days he had practically no rest, and dealt with some 300 casualties.

Captain Adam Annand Turner, R.A.M.C.
He remained at duty for forty-eight hours under fire and without rest, and succeeded in getting all the wounded away rapidly from the aid posts and forward areas in spite of heavy enemy barrages. He set his men a splendid example of fearlessness and devotion to duty.

Temporary Captain John Wilfred Watthews, R.A.M.C.
His evacuation of the wounded during and after attack was carried out with wonderful organization and skill. He worked continuously for forty-eight hours attending to the wounded under hostile shell fire.

Captain Harry Whitaker, R.A.M.C.
During an action he went forward and, in spite of heavy shell and machine-gun fire, searched out and dressed the wounded in the most advanced positions. When a counter-attack developed he refused to leave his post until all the wounded had been removed. His courage and devotion to duty were an inspiration to all ranks.

Temporary Captain Henry Dewi Hampton Willis-Bund, R.A.M.C.
He was in charge of a dressing station which was destroyed by shell fire. Though rendered unconscious, he continued to attend to the wounded in the open when he recovered, accompanied the battalion into action, and remained at duty for forty-eight hours. He showed the greatest courage and devotion to duty.

Captain Eric William Beresford Woods, A.A.M.C.
For several days he worked at his aid post under very heavy shell fire, attending to all stretcher cases in the open with great courage and complete disregard of danger. His untiring energy and organization saved many lives.

OPERATIONS IN PALESTINE.

The following medical officers are included in a list of awards for distinguished service in the field in connexion with military operations culminating in the capture of Jerusalem, published in a special Supplement to the *London Gazette* issued on April 11th:

To be C.M.G.
Colonel Richard H. Luce, C.B., V.D.

Awarded the D.S.O.
Colonel Evelyn J. R. Evatt, R.A.M.C.
Lieut.-Colonels (temporary Colonels): George A. T. Bray, R.A.M.C., Ernest B. Dowsett, R.A.M.C.
Temporary Lieut.-Colonel Henry Wade, R.A.M.C.
Majors (temporary Lieut.-Colonels): Robert J. Cahill, R.A.M.C., Matthew Dunning, R.A.M.C., Hugh Richardson, R.A.M.C.
Temporary Major James J. Abraham, R.A.M.C.
Captain (acting Lieut.-Colonel) Ernest C. Lambkin, R.A.M.C.

Awarded the Military Cross.
Captains: Philip S. Martin, R.A.M.C., Archibald B. Mitchell, R.A.M.C., James M. Mitchell, R.A.M.C.
Temporary Captain Gerald F. Bird, R.A.M.C.

THE King of the Belgians has conferred the decorations of Chevalier of the Ordre de Leopold and the Croix de Guerre upon Captain Robert G. Martyn, R.A.M.C.(S.R.), for distinguished services rendered during the course of the campaign.

NOTES.

SPECTACLES FOR SOLDIERS.

SINCE the paragraph on spectacles for soldiers was published on April 6th, p. 406, we have received a copy of Army Council Instruction 1371 of 1917, which is as follows:

(*a*) No simple spherical lens will be supplied of a less strength than 1.00 dioptre, or of a greater strength than 18.00 dioptres.
(*b*) No simple cylindrical lens will be supplied of a less strength than 1.00 dioptre, or of a greater strength than 6.00 dioptres.
(*c*) No sphero-cylindrical lens will be supplied having before or after transposition:
(i) One of its component parts less than 0.50 dioptre and the other component part less than 1.00 dioptre.
(ii) A combined strength of greater than 18.00 dioptres.
or
(iii) A cylindrical strength greater than 6.00 dioptres.
(*d*) No sphero-cylindrical lens will be supplied with a concave spherical surface and a convex cylindrical surface.
(*e*) No greater dioptre lenses will be supplied above 3.00 dioptres, and no half dioptre lenses above 6.00 dioptres.

As will be seen, the Order permits the supply of sphero-cylindrical lens, one of the component parts of which is half a dioptre, and therefore so far meets our suggestion. We believe that it would be politic to correct the smaller errors of refraction in all men engaged in clerical work for long hours.

Correspondence.

PRIMARY SUTURE OF WAR WOUNDS.

SIR,—In view of the fact that the names of others than a consultant surgeon are mentioned in Sir Anthony Bowlby's paper which appeared in the BRITISH MEDICAL JOURNAL of March 23rd, I feel it is only just, considering the knowledge of the facts which I possess, that credit and prominence should be given to the work of surgeons like Milligan, Charles, Lockwood, Roberts, Tabuteau, the Andersons, and others, who in 1914 and 1915 were laying the foundation, in an unostentatious way, of the recent work of which Sir Anthony writes. I am sure that the surgeons quoted in Sir Anthony Bowlby's paper would not wish that mention should be made of them alone.

I wish to point out that successful excision and suture of wounds of soft parts preceded and justified the application of the procedure to wounds of the knee-joint, head, chest, etc. It was the natural sequence. More than two years ago successful primary closure of fracture cases was being carried out.

Many of the names I have mentioned above are attached to articles describing work and results the excellence of which, in the early days of the war, was realized only by those who experienced them. The technique introduced then has stood the test of time, and is now, thanks to General Bowlby and others, being more widely appreciated.—I am, etc.,

H. M. W. GRAY,
Temporary Colonel A.M.S.,
Consultant Surgeon.

France, March 31st.

EPIDEMIC OF OBSCURE ORIGIN—POSSIBLY BOTULISM.

SIR,—I desire to call the attention of your readers to a series of unusual cases which have been occurring in and around the Sheffield district during the last few weeks so as to constitute a small epidemic. The characteristic features of the ten cases I have so far seen are briefly as follows: Acute and profound asthenia, amounting in some cases to complete disablement; drowsiness and apathy, sometimes with much delirium; and, also, various combinations of cranial nerve palsies, chiefly the oculo-motor nerves and the facials. In three of the cases there is facial diplegia, in two unilateral facial palsy. Nystagmus is an almost constant symptom. In some the clinical picture is that of a meningitis, but they recover instead of getting worse; in others profound drowsiness and asthenia are the most prominent symptoms.

Most of the cases have been in adults. No two have occurred in the same house, but in three instances two cases have lived quite near to each other. It is too early to hazard an opinion as to the exact nature or origin of these cases, but the symptoms present a similarity to those seen in certain outbreaks of botulism, due to the consumption of food infected by *B. botulini*. A reference to available descriptions of this disease is suggestive, and investigations are proceeding on these lines. It emphasizes the importance, should fresh cases arise, of making a detailed inquiry, as early as possible, concerning the foods taken by the patient prior to his illness. Otherwise, in a few days, such details are either unobtainable from the patient, owing to his condition, or forgotten by the friends. It seems desirable to make this preliminary statement in the hope of ascertaining whether similar cases, either isolated or in groups, have been met with elsewhere.—I am, etc.,

ARTHUR J. HALL.

Sheffield, April 14th.

THE VALUE OF THE WASSERMANN TEST.

SIR,—The memorandum in your issue of April 13th, by Dr. J. S. Robertson, contains warnings which merit more than a passing notice. Not only some of our profession, but numbers of the laity are lulled into a sense of security by a "negative" Wassermann reaction. It is not uncommon for men who have had syphilis and have discontinued treatment to undergo a Wassermann test without reference to their medical adviser. If the report is negative, they believe that they are "cured" and are liable to neglect fresh symptoms. I have recently had such a case, in which a negative reaction was reported to the patient (not to his doctor), and consequently no advice was sought

for many weeks after fresh syphilitic lesions developed. It seems to me very important that the public should be disabused of their faith in a negative blood reaction to this test.—I am, etc.,

London, W., April 15th. J. B. Lawford.

UNIVERSITY REPRESENTATION IN PARLIAMENT.

Sir,—Like probably many others, I have received a circular from a self-constituted committee, which seems desirous to appropriate for a Conservative or Unionist the seat in Parliament given to some seven universities. May I venture to urge my co-electors in all these universities to set their faces like steel against the introduction of politics, especially of a kind now becoming rapidly obsolete?

That some united action is necessary is apparent to all graduates, but I would voice a wish that what we at this juncture require—after a compromise between the several universities concerned and the professions involved—is a candidate or candidates keen on social questions, whether educational, health, or other, who knows his subject and who we can support—financially, if necessary—at the election, and afterwards in carrying out his task.

Will those in authority in these universities, representative of the professions involved, wake up and give the graduates an opportunity to crystallize their opinions and actions before it is too late?—I am, etc.,

Hove, April 11th. E. Rowland Fothergill, M.B.

Obituary.

GUY ELLISTON,

FINANCIAL SECRETARY AND BUSINESS MANAGER OF THE BRITISH MEDICAL ASSOCIATION.

The deep regret with which we announce the death, at the age of 46, of Mr. Guy Elliston will be shared by all members of the Association, but especially by those who have had opportunity of knowing the work he has unobtrusively done for it during the last nineteen years. He had not been in robust health for some time, and an attack of pneumonia proved fatal on April 13th after a few days' illness.

Guy Elliston was the third son of the late Dr. W. A. Elliston, who was president of the British Medical Association when it held its annual meeting in Ipswich in 1900. He was educated at Ipswich School, and entered upon a business career in Liverpool in 1888, where he was concerned in initiating a direct steamship service between Manchester and Paris. In 1897 he joined the staff of the *Weekly Sun*, and in the following year became manager of the *Naval and Military Magazine* and the *Public Health Magazine*. He joined the 1st Lancashire Artillery Volunteers in 1891, retiring when senior captain in 1897.

Mr. Elliston became Assistant Secretary to the British Medical Association in 1899, and succeeded Mr. Francis Fowke as General Secretary in 1902. The reconstitution of the Association in 1902 and the great expansion of its medico-political work led to the creation of the office of Medical Secretary, and Mr. Elliston's sphere of duty was defined as that of Financial Secretary and Business Manager. His interest in everything concerning the welfare of the Association never flagged. He was always diligent in supplying information required by the Council or its Committees, and did not spare himself in procuring and setting it out. The better he was known the higher became the opinion of his competence in his special sphere of duties. He was ever anxious also to assist individual members of the Association, and he won amongst them many friends who appreciated his qualities as a man and valued his intimate knowledge of the business side of professional life.

The financial position of the Association in 1902 was very satisfactory; it owned the freehold of its house in the Strand and possessed a considerable sum in investments. The policy of building larger and more convenient offices having been accepted in principle, plans were approved as the result of a public competition and the work was begun in 1907. Mr. Elliston arranged temporary offices in Catherine Street, where the work was carried on for two years. In 1908 the new offices were ready for occupation and the expenditure on the whole transaction was being defrayed at a satisfactory rate. The financial situation was seriously altered for the worse by the introduction of the Insurance Act in 1911, entailing on the Association a large expenditure in its struggle to maintain the just claims of the profession. For some years the position caused anxiety to those responsible for the financial affairs of the Association, and especially to the Treasurer, Dr. Rayner, and his executive officer, Mr. Elliston. The wise and careful policy followed was rewarded by steady improvement. The favourable course was interrupted by the outbreak of the war and the disturbance it produced in all business affairs, not least in those in any way concerned with printing and publishing; prices went up for everything, including postage, a serious matter to an Association which issues a weekly journal by post, as well as many other documents, to some twenty-four thousand members. The foresight and prompt decision displayed by Mr. Elliston as each fresh difficulty arose were of the greatest value in enabling the Association to maintain its work while safeguarding its funds. His action has again and again received marks of approbation from the Council and deserves like recognition from every member.

The preliminary arrangements for the annual meetings of the Association, and for the exhibition held during each, were in the hands of Mr. Elliston; and Dr. Collier, President of the Association when it met at Oxford in 1904, recalls in a short note the invaluable help Mr. Elliston so readily gave to him. The local committees in other centres will be ready to bear testimony to the same effect.

The Workmen's Compensation Act of 1906 raised many questions which seriously concerned the medical profession, and the need for insurance against the risks which arose under it was in every one's mind. It was felt that steps should be taken to meet the special needs of the profession, but it was found that the British Medical Association could not under its constitution undertake the work. The *Lancet* and the British Medical Journal, acting together, formed a committee which established the Medical Insurance Agency, with the late Dr. Radcliffe Crocker as Chairman, and Mr. Guy Elliston as Secretary and Agent. The work of the agency grew rapidly, and it was extended to include life assurance, motor car insurance, and policies covering other risks of professional life. It had been resolved at the inception of the agency that special concessions should be made to policy holders, and that any surplus should be used to make contributions to existing medical charities. At the half-yearly meeting of the committee last November it was reported that since the agency was established the insured had received £6,500 by way of direct benefit, and at the same time had the satisfaction of knowing that substantial contributions were being made to the funds of medical charities. Down to the end of 1916 the agency had thus distributed £2,405; at the end of 1917 the amount had risen to £3,405. The funds chiefly benefited have been the Royal Medical Benevolent Fund and the Guild, the Epsom College Benevolent Fund, and the Royal Medical Benevolent Fund of Ireland. Last year a sum of £1,000 was distributed, including a special contribution made to the War Emergency Fund of the Royal Medical Benevolent Fund. Dr. Haslip, who in 1909 succeeded Dr. Radcliffe Crocker as chairman of the committee, desires us to say that in his judgement the success of the agency has been in a large measure due to the judicious and energetic manner in which Mr. Elliston conducted its affairs.

Mr. Elliston leaves a widow and four daughters, and with them much sympathy is felt. Three of his brothers are at present serving with the armies abroad.

Dr. Edwin Rayner, who was treasurer of the British Medical Association from 1907 to 1915, has sent us the following tribute to Mr. Elliston's memory:

Since the last issue of the Journal the British Medical Association has sustained a serious loss through the death of Mr. Guy Elliston, its Financial Secretary and Business Manager. His illness was not generally known to the members, and it was only in the later part of last week that complications supervened causing grave anxiety to those associated with the case. On Friday there seemed some slight improvement, but the reports said that he was very weak. This weakness seems to have rapidly increased, and he passed away on Saturday morning. A more careful,

trustworthy, and conscientious official no society every had. Never, especially of late years, blessed with robust health, he always considered the welfare of the Association far before his own health and pleasure. A month or so ago he was too unwell to come to the office for a time, and had he not interrupted his convalescence by coming to the office and so exposing himself to the continual piercing winds we might not have had to deplore his loss. I have been closely associated with him for many years in the work of the Association, and often in anxious circumstances, as when our overdraft at the bank increased and attained the sum of £55,000. It was finally cleared off at the beginning of 1917, and this happy condition was partly due to the industry and foresight of our Financial Secretary. Personally I have been associated with him for ten years, and I greatly deplore his loss. He was proud of the Association, and those members of the Association with whom he came most in contact were proud of him.

Dr. HASLIP, who has been Treasurer of the Association during the last two years, and Chairman of the Committee of the Medical Insurance Agency since 1909, adds the following personal tribute:

The death of Mr. Elliston, our Financial Secretary, must have come as a great shock to many of our members, as it was to myself, for the last report received of his illness was so favourable that we had hoped he was out of danger. However, this was not to be, and we have all to mourn a loyal colleague and a most devoted and faithful officer of the Association. My predecessor, Dr. Rayner, can speak of Mr. Elliston's services during the strain on the finances of the Association by the rebuilding of our premises and in the period after the introduction of the Insurance Act. Although my knowledge with regard to his business capacities extends over the same period, I can write better of my further appreciation during the time I have been practically in daily contact with him; I can substantiate all Dr. Rayner has said, for it has been due to his foresight and knowledge that we have been able to cope with the difficulties which have constantly recurred during this period of war; they have been very perplexing and worrying. When we remember the rise in the cost of printing, the great increase in the price of paper and the difficulty in obtaining an adequate supply, and the fact that our interests have been twice affected by enemy action—involving on the last occasion the destruction of a considerable quantity of paper—the anxieties caused to our late Business Manager will be understood.

As to Mr. Elliston's services to the Medical Insurance Agency, I have no hesitation in saying that it has been entirely due to him that so great a success has been achieved. Started from a small beginning and with modest expectations, we were able in the early years to give £50 to medical benevolent funds, and were highly gratified by this result; but last year, 1917, the committee was able to devote the sum of £1,000 to charitable purposes; the early prognostications of our secretary were thus confirmed, and I know that this gave him great satisfaction, for he saw that an annual contribution such as this would become powerful in helping to bring about the proper co-operation of our various medical charities, which was the great object of his ambition, for, being a practical business man, he knew that by this arrangement further benefit would be derived by the profession. I consider that this great success will always be a memorial of his services to the profession.

Personally I know I have lost a true friend and colleague and one it will be very difficult to replace. By his death we of the Association I am convinced have not only lost an officer who was a courteous gentleman, always ready to give his advice and assistance to members, but a good financial adviser possessing great foresight and sound sagacity. We shall have every reason to mourn the loss of Guy Elliston.

The EDITOR, who has been closely associated with Mr. Elliston throughout the whole of his service with the Association, begs leave to add a few personal words. Elliston did not appear at his best on public occasions; it was necessary to watch his work from day to day to know how valuable his services were to the Association, and with what honesty and zeal he gave his best to it through nineteen years, in which he encountered and surmounted many difficulties. He was thorough and conscientious in all his work. He had so intimate a knowledge of finance, and moved so easily among figures that he did not always find it easy to understand the difficulties of the less expert. For this reason his first presentation of a new subject might fail to carry conviction, but discussion showed that the points were quite clear in his own mind, and that all that was needed was a fuller statement in which assumptions that had seemed to him obviously true were set out and explained. He was always looking ahead, and again and again, during the last four years especially, his forecast was justified by the event. A more loyal colleague never breathed.

The funeral took place at Ipswich on April 17th. The British Medical Association was represented by the Chairman (Dr. J. R. Staddon) and the Honorary Secretary (Dr. F. Fowler Ward) of the South Suffolk Division, and by Dr. James Neal, the Deputy Medical Secretary. Amongst the floral tributes was a wreath from Dr. G. E. Haslip, the Honorary Treasurer of the Association, another from the officers of the Medical Secretary's department and the BRITISH MEDICAL JOURNAL, and a third from the clerical and printing staffs of the Association.

W. M. CROWFOOT, M.B., F.R.C.S.ENG.,
CONSULTING SURGEON TO THE BECCLES HOSPITAL.

THE death of Dr. William Miller Crowfoot, of Beccles, on April 6th, at the age of 80, removes one of the most distinguished members of the medical profession in East Anglia. For more than a century the Crowfoots of Beccles, father and son, have been held in the highest esteem by their professional brethren far and near.

Dr. William Crowfoot received his medical education at St. Bartholomew's Hospital, where he had a distinguished career, winning many medals and scholarships at the University of London. After receiving the qualifications M.R.C.S. and L.S.A. in 1858, and the M.B. degree in the following year, he joined his father in practice. In 1890 he was elected a Fellow of the Royal College of Surgeons. Dr. Crowfoot took an active part in local affairs. He was a keen supporter of the volunteer movement of 1860, retiring with the rank of honorary lieutenant-colonel, and was a justice of the peace for the County of Suffolk. Dr. Michael Beverley, who was associated with Dr. Crowfoot professionally for more than fifty years, writes of his popularity in the medical circle at Norwich, and of his high social and scientific qualities. To the proceedings of medical meetings there he often contributed valuable papers, and his address as president of the East Anglian Branch of the British Medical Association many years ago was a signal success. Dr. Crowfoot was an enthusiastic naturalist, with a special leaning towards botany, and he took a keen interest in archaeology. The funeral took place on April 10th.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council was held on April 11th, when Sir George Makins, G.C.M.G., C.B., President, was in the chair.

It was decided not this year to present a report to the Fellows and Members, nor to hold the annual meeting of Fellows and Members.

The subject for the Jacksonian Prize for the year 1919 is the investigation and treatment of injuries of the thorax received in war. The John Tomes Prize for 1915-17 was awarded to Mr. Joseph George Turner, Fellow and Licentiate in Dental Surgery of the College, for his work on the subject of dental pathology. Miss Edith Marjorie Rooke, of the London School of Medicine for Women, was appointed to the Begley studentship.

The following Members of twenty years' standing were elected Fellows: Sir Alan Reeve Manby, M.V.O., Colonel Sir Robert Jones, C.B., A.M.S., Inspector of Military Orthopaedics.

THE Local Government Board has issued an order empowering county councils and borough councils to arrange for the provision of serum for the treatment of cases, or suspected cases, of cerebro-spinal fever, together with the necessary apparatus for administration, and for the examination of suspected cases and contacts. The order applies to every administrative borough in England and Wales, and is in force as from April 1st, 1918. Its object is to secure the prompt gratuitous provision of antimeningococcus serum for the use of medical practitioners in each area.

Medical News.

Dr. G. F. SYDENHAM, of Dulverton, Somerset, has been appointed a Justice of the Peace for Somerset.

THE bill of the Decimal Association for a decimal coinage in this country has been approved by the Associated Chambers of Commerce, and will be introduced into the House of Lords by Lord Southwark.

MAJOR SIR ROBERT ARMSTRONG-JONES, R.A.M.C., will read a paper on mental effects of the war and their lesson in social and medical reconstruction, at the Royal Society of Arts, John Street, Adelphi, on Wednesday, when Lord Sydenham will take the chair at 4.30 p.m. All interested in the subject are invited.

AT a meeting of the Edinburgh and Leith Medical War Committee, on April 10th, a resolution was adopted unanimously disapproving of the apparent intention of the Government in the new Military Service Bill to treat members of the medical profession on a different footing from other classes by making them liable for service to the age of 56 years. The resolution was approved at another meeting of medical practitioners in Edinburgh on April 12th.

AT a meeting of the Irish Committee on April 4th, Dr. Giusani in the chair, a resolution was unanimously passed offering the support of the committee to the Enniskillen Poor Law medical officers in their efforts to secure adequate salaries from their guardians. At a meeting of the Irish Medical Committee, presided over by Dr. E. C. Thompson, D.L., a resolution was passed expressing the sympathy of the meeting with the Enniskillen dispensary doctors who resigned their offices when the guardians had refused three applications to increase their salaries.

DR. ADDISON, Minister of Reconstruction, in reply to a deputation from the Joint Standing Committee of Industrial Women's Organizations and the Labour Party, urging the immediate establishment of a Ministry of Health, stated that just before Easter he concluded the negotiations in which he had been engaged for some months at the Prime Minister's request. As soon as the national crisis became less acute he hoped to present his proposals to the Government. If it were decided before long to establish a Ministry of Health, he anticipated that the measure which Parliament would be asked to sanction would receive the whole-hearted approval of those whom the deputation represented.

THE reports as to the prevalence of plague in Northern China have received explanation in a letter published in the *Times* from its Peking correspondent. It appears that in December information was received from missionaries in the district of Mongolia immediately north of the Shansi Province of China that pneumonic plague had broken out. The fact was confirmed by foreign and Chinese doctors sent to the spot. The epidemic spread into the northern part of Shansi and finally to a point 150 miles south-west of Peking, where it was close to the Chengtai Peking-Hankow railways, but owing to the precautions taken by the railway authorities no cases occurred on either line, although the infection also spread eastward to a point 100 miles north of Peking. It is hoped that the worst is over, but no certainty can be felt that the infection may not be lighted up in other regions. The origin of the present outbreak is at present unknown, but it is thought to be associated with the marmots of the Mongolian plateau. In his volume of reports on the North Manchurian Plague Prevention Service, which has just reached this country, the director, Dr. Wu Lien-Teh, who is a Cambridge graduate and a London student, gives much interesting information. Writing on October 26th he was able to say that plague had then been absent from Manchuria and Northern China for the seventh year in succession; but he noted that there had been an outbreak of pneumonic plague in Kansu, on the Tibetan border, which, however, was easily dealt with. With the assistance of Dr. Eberson, a graduate of Columbia University, who arrived in Manchuria in May, 1916, special investigations had been made in the research department at Harbin in the hope of discovering a serum for pneumonic and septicaemic plague. Dr. Eberson reported his results in the *American Journal of Experimental Medicine* in a paper on the nature of plague proteotoxins, and in another on the production of active immunity to systemic plague. One of the articles in the volume points out that while pneumonic plague is most dangerous in winter bubonic plague is more prevalent in the warm weather, and the behaviour of the disease during the present summer will be watched with interest and some apprehension. The importance of the rat as disseminator of the disease is fully recognized.

Letters, Notes, and Answers.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Attiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediocre, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS NOTES, ETC.

A VACANCY is announced for a medical referee under the Workmen's Compensation Act, 1906, for the Canterbury, Faversham, Ashford, and Tenterden and Cranbrook County Courts in Circuit No. 49. Applications to the Private Secretary, Home Office, by May 2nd.

ORAL SEPSIS.

MAJOR F. N. GRINLING, R.A.M.C.T.F. (Wolverhampton), writes that he has been struck, whilst acting as president of an invaliding board principally engaged in reviewing the cases of men already pensioned, by the large number invalided for neurasthenia, rheumatic and other affections, who were suffering from the effects of oral sepsis. In the majority of cases the documents give no evidence of previous recognition of this factor. This illustrates, he says, not only the inadequacy of dental treatment in the army, but also the futility of a National Insurance Act which makes no provision for such treatment.

J. G. H. writes to suggest that the frequency of pyorrhoea alveolaris amongst soldiers is due to the absence of fruit from their dietary.

THE VENEREAL DISEASES ACT, 1917.

IN the King's Bench Division on April 16th an appeal was heard in a case stated by two of the justices of Cannock, Staffordshire, with reference to a conviction by them under the Venereal Diseases Act, 1917. It appears from the report in the *Times* that a handbill offering to give advice on the treatment of venereal disease in the name of the Curtis Medical Laboratory (Ltd.), of Hill Street, Birmingham, was found on October 11th, 1917, to be affixed to the inside wall of a public urinal at Cannock. The prosecution was taken against James Walker, Harry Key, and Fred. Waite—Walker being a director, Waite manager and secretary, and Harry Key a shareholder in the company, the three being the only persons present at the last annual meeting of the company. The magistrates stated that from the evidence before them it was proved to their satisfaction that the three defendants named all took an active part in carrying on the said business of the company, and that the said bill advertising the same was posted on their authority and with their knowledge and consent. The magistrates convicted, and fined Walker £25, Key £50, and Waite £50. The appeal was made on the ground that there was no evidence that any of the three defendants had either committed the offence or aided and abetted in its commission, and that there was no evidence that any of them took any part in the business of the company. Counsel for the respondents were not called on. Mr. Justice Darling, who delivered judgement, said that the magistrates were quite justified in coming to the conclusion they did. The three defendants had individually violated the provisions of the Act of Parliament. Mr. Justice Avory and Mr. Justice Atkin concurred, and the appeal was dismissed with costs.

THE CAPACITY OF THE BLADDER.

DR. W. JOBBERNS (Wolverhampton) writes: A primipara on the third day complained of pain in the lower part of the abdomen, and said she had not passed any water during the day, though the bowels were moved the day before. A catheter was passed and five pints of urine drawn off. The quantity was carefully measured.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.